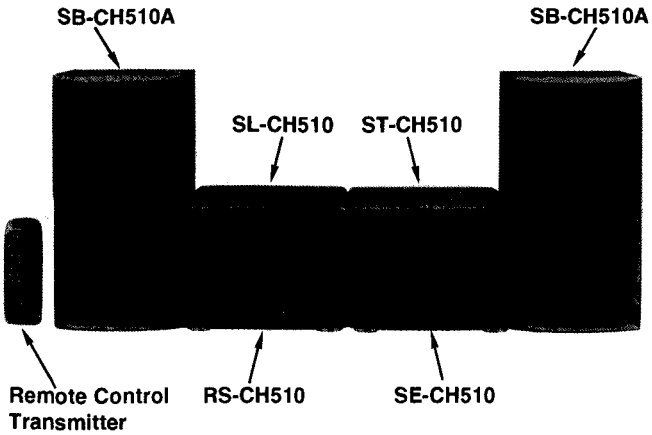
ORDER NO. AD9407191C8

Service Manual

Compact Disc Player

SL-CH510



Colour

(K) ..... Black Type

Area

Suffix for Model No.	Area	Colour
(E)	Europe, Asia, Latin America, Middle Near East and Africa and Oceania	(K)

Because of unique interconnecting cables, when a component requires service, send or bring in the entire system.

System: SC-CH510

RAE0113Z MECHANISM SERIES

Specifications

■ Audio

DA converter 1 bit 2 DAC MASH

■ Pickup

Wavelength 780 nm

■ General

Dimensions (W × H × D) 270 × 89 × 266 mm

Weight 1.9 kg

Notes:

Specifications are subject to change without notice.

Weight and dimensions are approximate.

*1

MASH is a trademark of NTT.

System	Tuner/sound processor	Compact disc player	Amplifier	Cassette Deck	Speakers
SC-CH510	ST-CH510	SL-CH510	SE-CH510	RS-CH510	*2 SB-CH510A

*2: For Europe ..... Made in PAES

For other areas ..... Made in NABEL

Technics®

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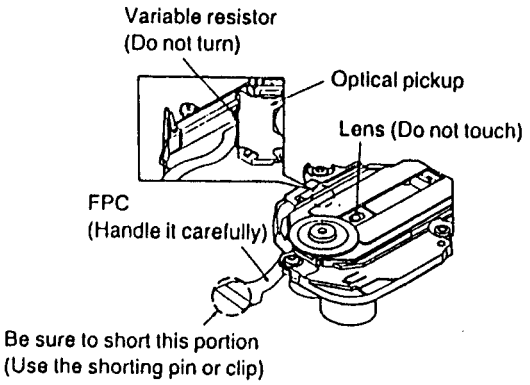
NOTE:
Refer to the service manual for Model No. SE-CH510 (ORDER No. AD9407197C8) for information on "Accessories", "Stacking the Components", "Connections" and "Packaging".

■ Handing Precautions for Traverse Deck

The laser diode in the traverse deck (optical pickup) may break down due to potential difference caused by static electricity of clothes or human body.
So, be careful of electrostatic breakdown during repair of the traverse deck (optical pickup).

• Handling of traverse deck (optical pickup)

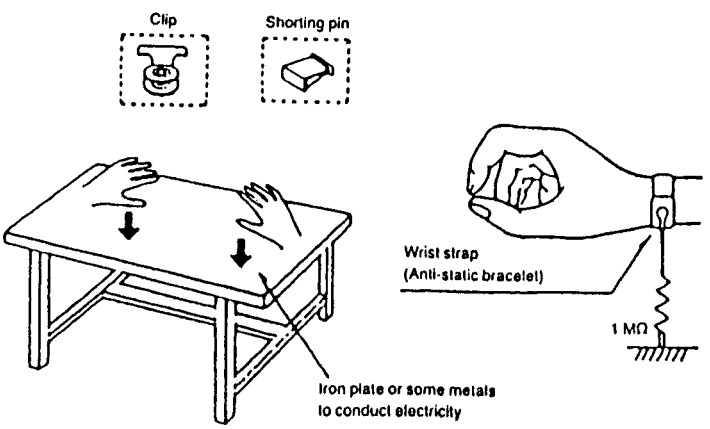
1. Do not subject the traverse deck (optical pickup) to static electricity as it is extremely sensitive to electrical shock.
2. To prevent the breakdown of the laser diode, an anti-static shorting pin is inserted into the flexible board (FPC board). When removing or connecting the short pin, finish the job in as short time as possible.
3. Take care not to apply excessive stress to the flexible board (FPC board).
4. Do not turn the variable resistor (laser power adjustment). It has already been adjusted.



• Grounding for electrostatic breakdown prevention

1. Human body grounding
   Use the anti-static wrist strap to discharge the static electricity from your body.
2. Work table grounding
   Put a conducive material (sheet) or steel sheet on the area where the traverse deck (optical pickup) is placed, and ground the sheet.

Caution:
The static electricity of your clothes will not be grounded through the wrist strap. So, take care not to let your clothes touch the traverse deck (optical pickup).



■ Precaution of Laser Diode

CAUTION: This product utilizes a laser diode with the unit turned "on", invisible laser radiation is emitted from the pick up lens.
Wave length: 780 nm
Maximum output radiation power from pick up: 100 μW/VDE

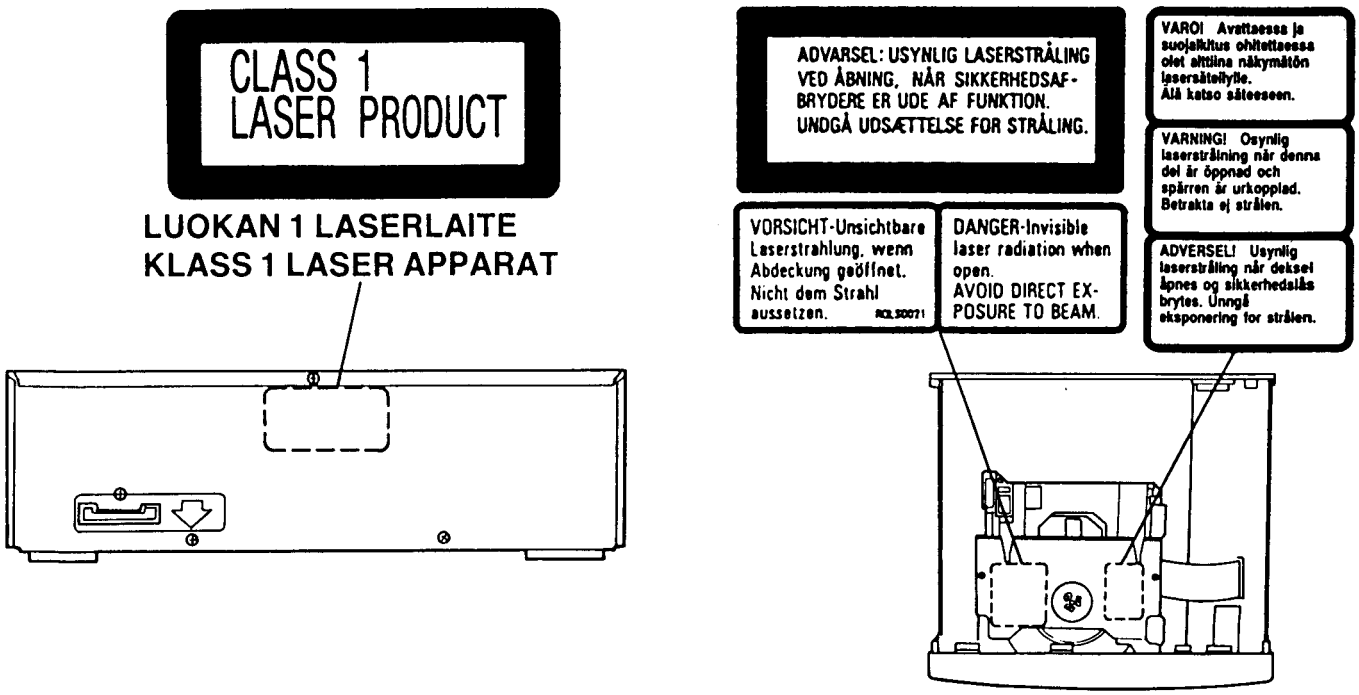
Laser radiation from the pick up unit is safety level, but be sure the followings:

1. Do not disassemble the pick up unit, since radiation from exposed laser diode is dangerous.
2. Do not adjust the variable resistor on the pick up unit. It was already adjusted.
3. Do not lock at the focus lens using optical instruments.
4. Recommend not to lock at pick up lens for a long time.

ACHTUNG: Dieses produkt enthält eine laserdiode. Im eingeschalteten zustand wird unsichtbare laserstrahlung von der lasereinheit adgestrahit.
Wellenlänge: 780 nm
Maximale strahlungsleistung der laserinhelt: 100 μW/VDE

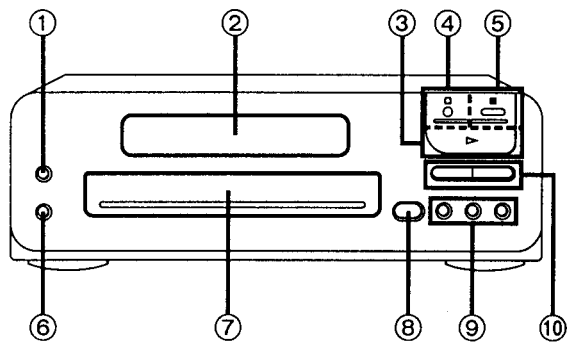
Die strahlung an der lasereinheit ist ungefährlich, wenn folgende punkte beachtet werden:

1. Die lasereinheit nicht zerlegen, da die strahlung an der freigelegten laserdiode gefähriich ist.
2. Den werksseitig justierten einstellregler der lasereinreit nicht verstellen.
3. Nicht mit optischen instrumenten in die fokussierlinse blicken.
4. Nicht über längere zeit in die fokussierlinse blicken.


CLASS 1
LASER PRODUCT
LUOKAN 1 LASERLAITE
KLASS 1 LASER APPARAT
ADVARSEL: USYNLIG LASERSTRÅLING VED ÅBNING, NÅR SIKKERHEDSAF-BRYDERE ER UDE AF FUNKTION. UNDGÅ UDSÆTTELSE FOR STRÅLING.
VAROI Avattaessa ja suojalkitus ohitettaessa olet alttiina näkymätön lasersäteilylle. Älä katso säteeseen.
VORSICHT-Unsichtbare Laserstrahlung, wenn Abdeckung geöffnet. Nicht dem Strahl aussetzen.
DANGER-Invisible laser radiation when open. AVOID DIRECT EX-POSURE TO BEAM.
VARNING! Osynlig laserstrålning när denna del är öppnad och spärren är urkopplad. Betrakta ej strålen.
ADVERSEL! Usynlig laserstråling når dekse! åpnes og sikkerhedslås brytes. Unngå eksponering for strålen.

■ Location of Controls

① **Repeat button**
② **Display section**
③ **Play button and indicator**
④ **Stop button**
⑤ **Pause button**
⑥ **Random play button**
⑦ **Disc tray**
⑧ **Disc tray open/close button**
⑨ **CD edit button**
⑩ **Skip/search buttons**



■ Listening to Compact Discs

Sequential play

1 **Switch on the power.**
"no dISC" indicates that a CD has not been installed.

2 **Press ▲ OPEN/CLOSE to open the tray.**
Insert the CD with label facing upward.
Do not put your finger through the hole in the middle of the tray. It could get caught when the tray closes.
An adaptor for CD single is not required.

3 **Press ▲ OPEN/CLOSE to close the tray.**
When there are 13 or more tracks on the CD, "▶▶" will appear.

4 **Press ▷.**
Press the button on the "▷" indicator to start play correctly.
Play will start from the first track on the CD.
Play will stop automatically when the last track on the CD finishes playing.

5 **Adjust the volume level as you like.**

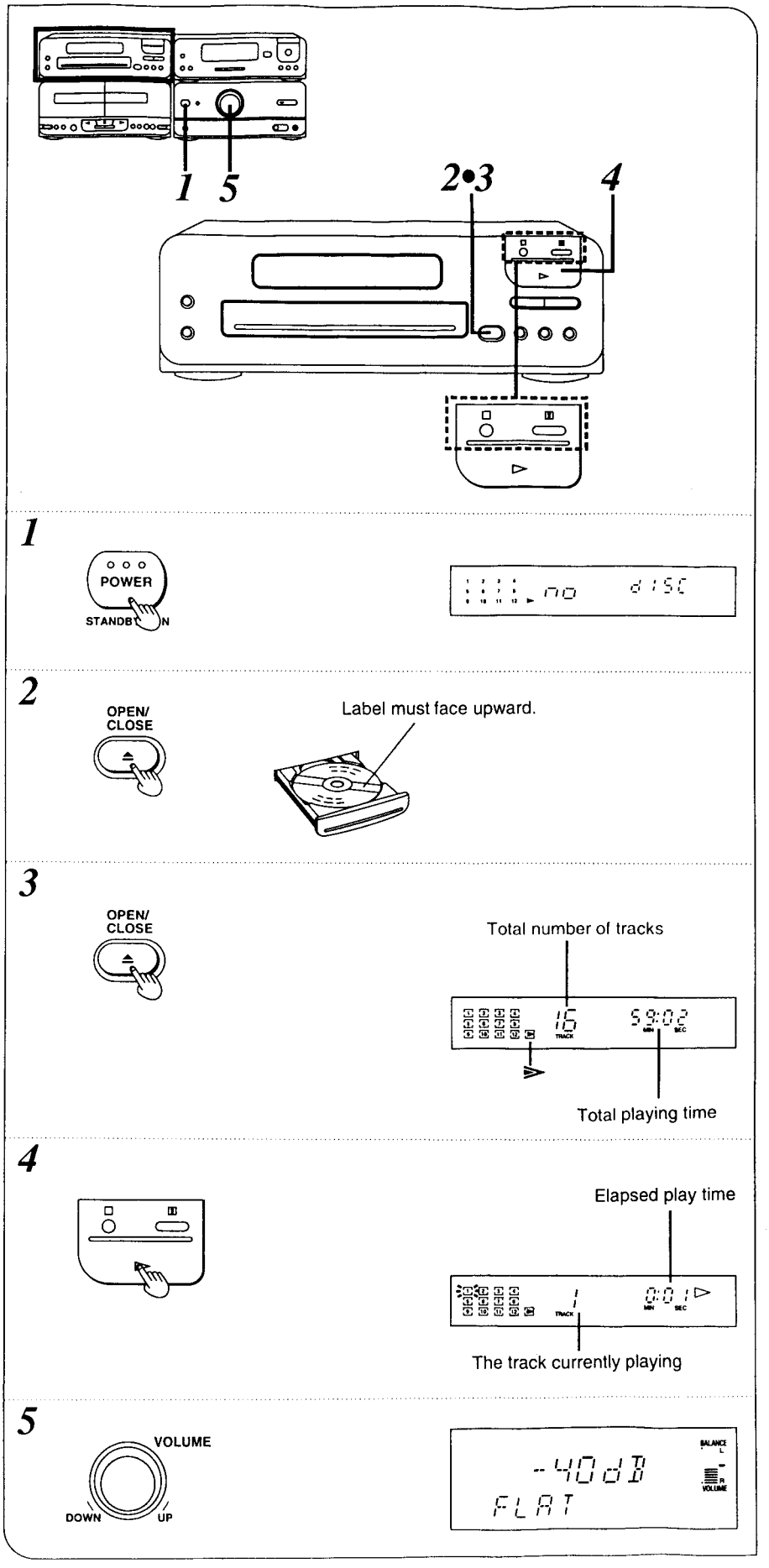
To stop the disc play:
Press □.

To temporarily stop the disc play:
Press ▯▯. ▷ flashes up green.
To play again, press ▷.

For your reference:
If you press ▷ instead of ▲ OPEN/CLOSE after inserting a CD, the tray will close and play will start directly from the track 1.

About ▷ indicator:
While halted: Lights up orange.
While playing: Lights up green.

About the total playing time:
The total playing time displayed includes the silent sections between tracks. Hence, there will be a difference between the total playing time and the liner notes.



■ Operation Check and Main Component Replacement Procedures

NOTE

1. **This section describes procedures for checking the operation of the major printed circuit boards and replacing the main components.**
2. **For reassembly after operation checks or replacement, reverse the respective procedures. Special reassembly procedures are described only when required.**
3. **Select items from the following index when checks or replacement are required.**
4. **Illustrated screws are equivalent to actual size.**
5. **Refer the parts No. on the page of "Main Component Replacement Procedures", if necessary.**

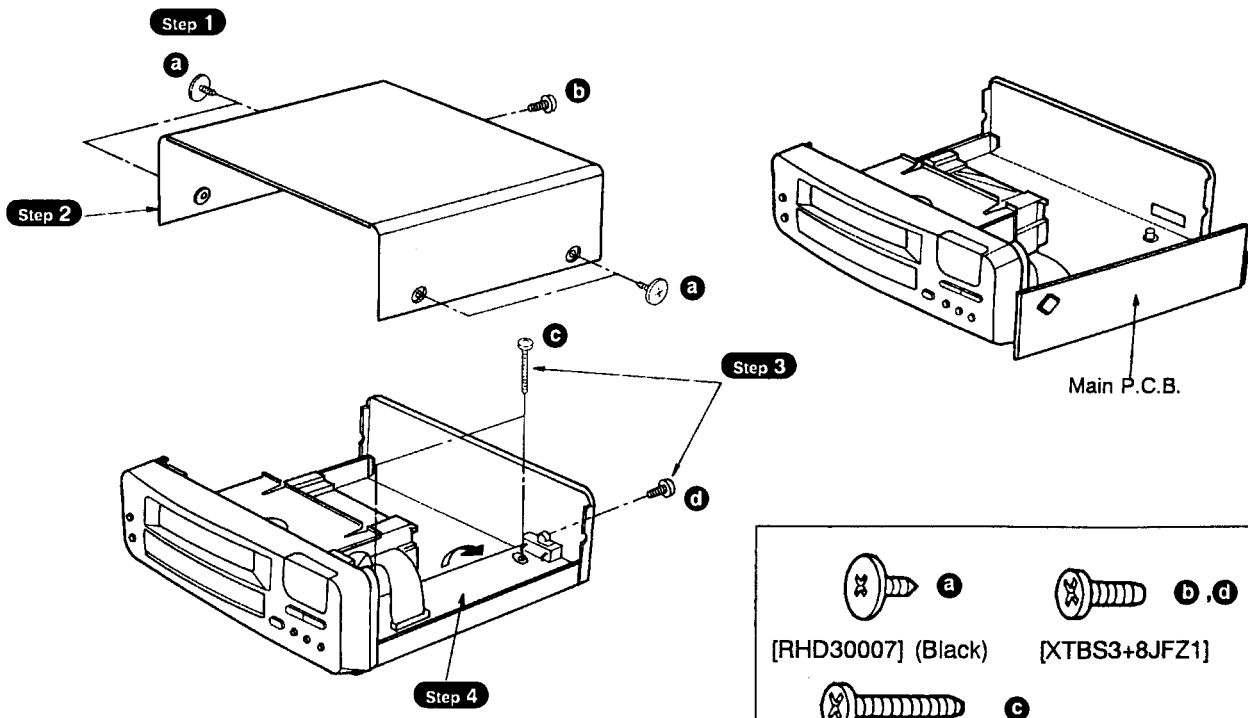
● Contents

Page

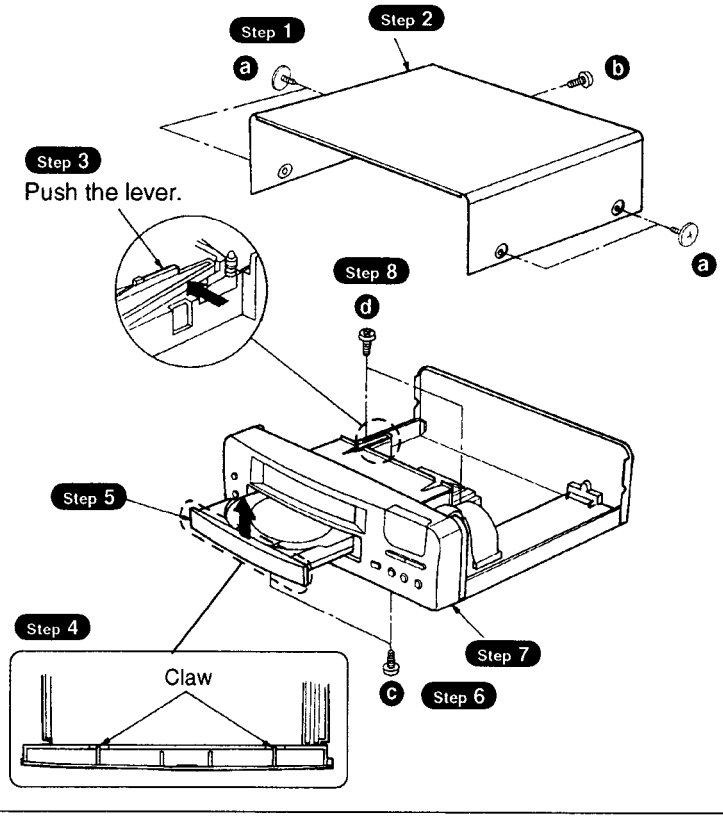
- **Checking Procedure for each P.C.B.**
  1. Checking for the main P.C.B. ..... 5.
  2. Checking for the operation P.C.B. and servo P.C.B. ..... 6.
- **Main Component Replacement Procedures**
  1. Replacement for the traverse deck ass'y ..... 6~8.
  2. Replacement for the loading belt and loading motor ..... 8.

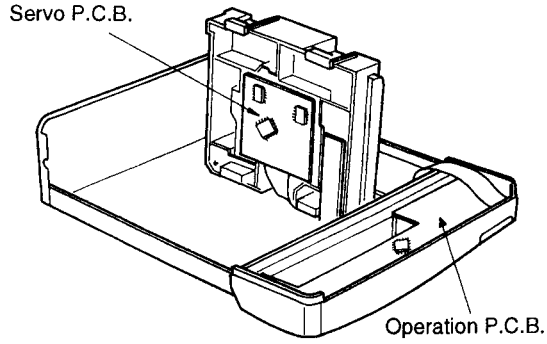
■ Checking Procedure for each P.C.B.

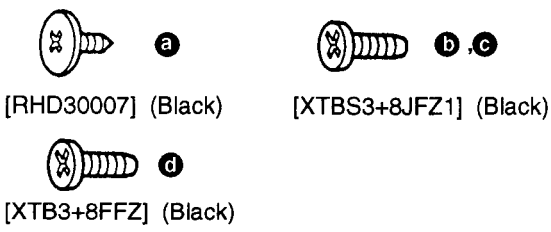
1. Checking for the main P.C.B.



2. Checking for the operation P.C.B. and the servo P.C.B.



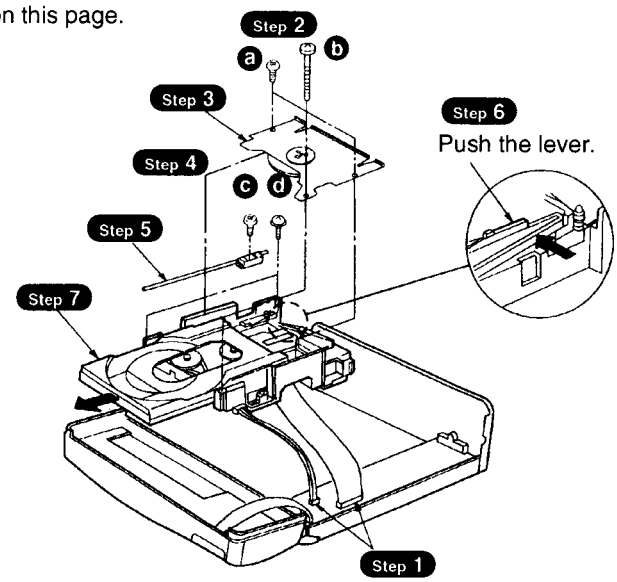


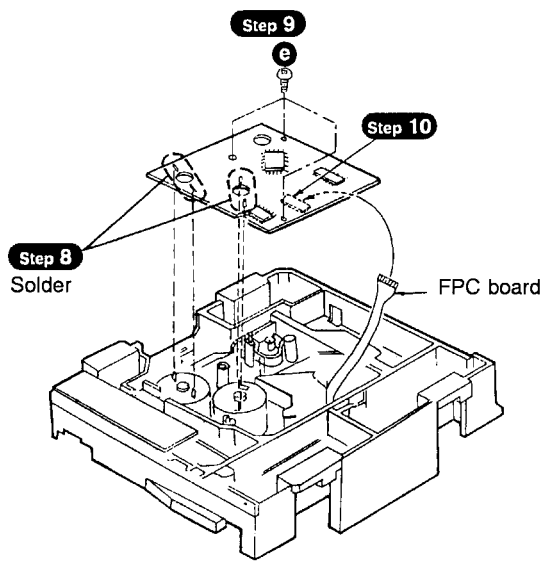


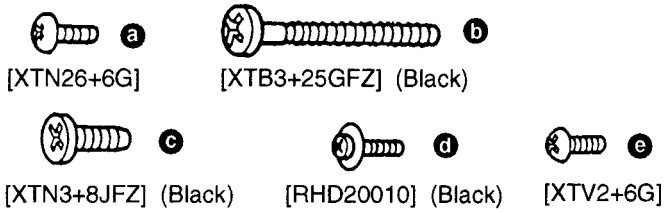
■ Main Component Replacement Procedures

1. Replacement for the traverse deck ass'y

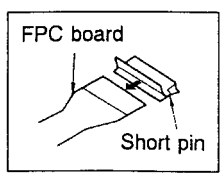
- Follow the item 2 in checking procedure for each P.C.B. on this page.



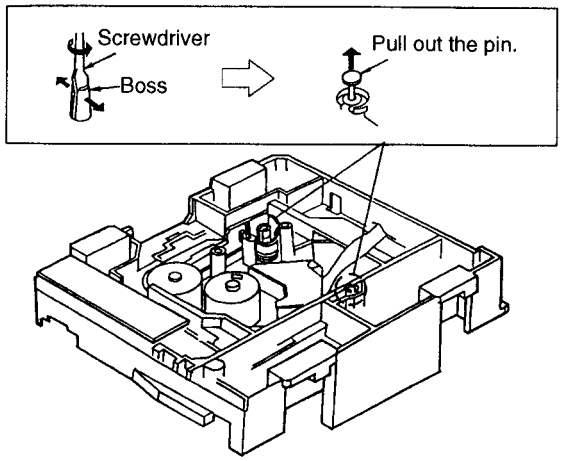


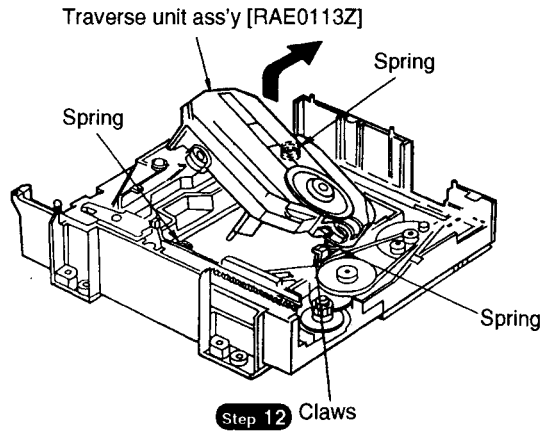


Caution:
Insert a short pin into the traverse unit FPC board.
(Refer to "Handling Precautions for Traverse Deck" on page 2.)



Step 11

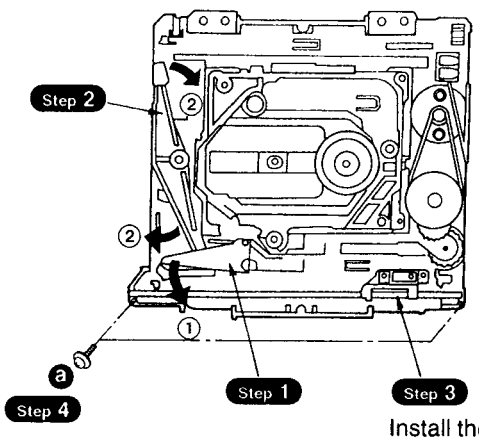




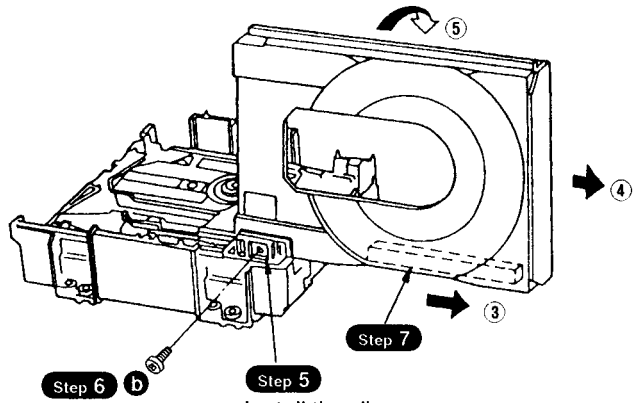
NOTE

Be careful not to lose the 3 springs because those will also be removed on removal of the traverse unit ass'y.

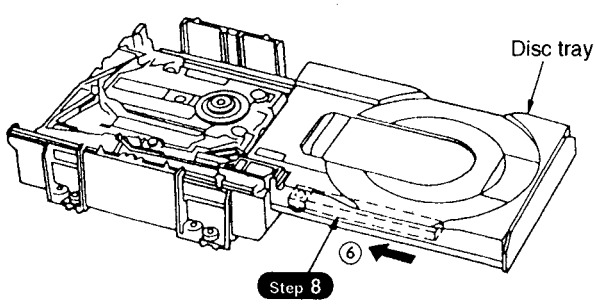
Installation of the disc tray after replacement



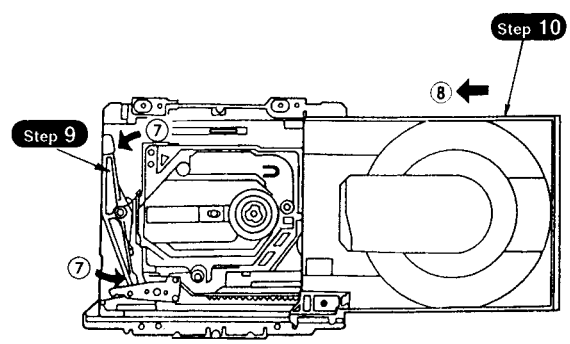
Install the guide shaft and guide shaft holder.



Install the disc tray.



Hold the disc tray and slide the drive gear (2).

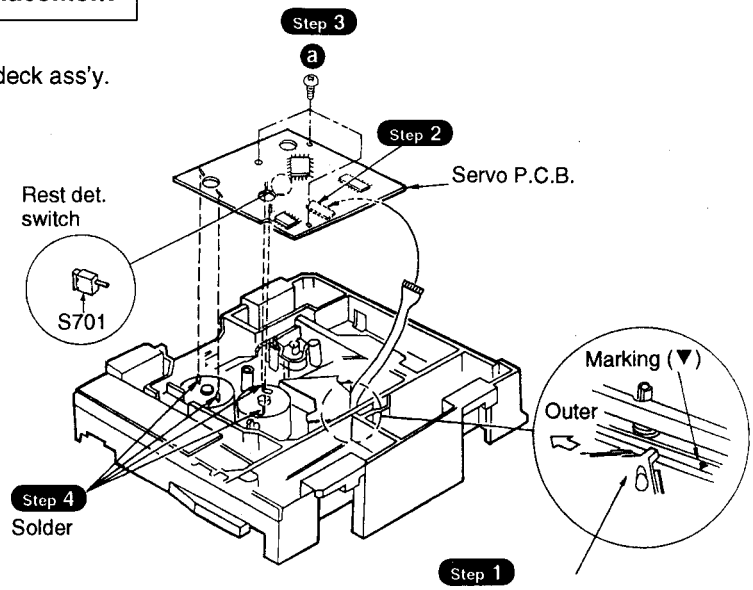


[RHD20010] (Black) [XTN3+8JFZ] (Black)

Installation of the servo P.C.B. after replacement

Step 1 Install the servo P.C.B. in the traverse deck ass'y.

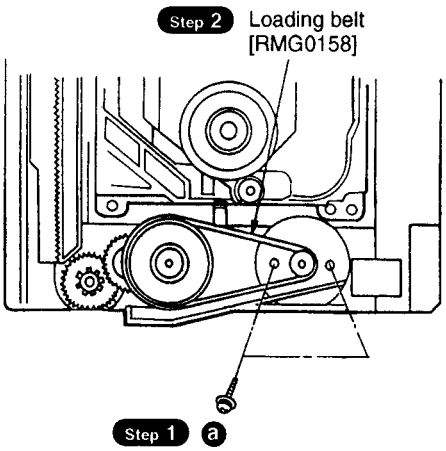
Before installing the servo P.C.B., move the optical pickup toward the outer edge from the mark "▼". [Otherwise, the rest detect switch (S701) mounted on the servo P.C.B. may be damaged.]

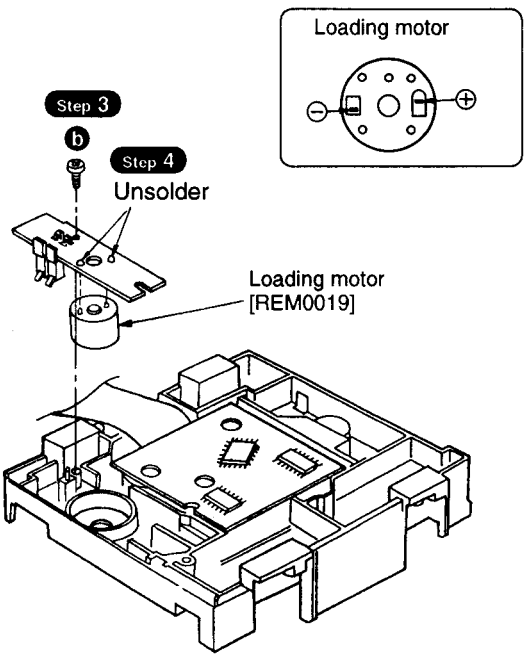


a [XTV2+6G]

2. Replace for the loading belt and loading motor

- Follow the item 2 in checking procedure for each P.C.B. on page 6.
- Follow the Step 1 ~ Step 7 of item 1 in main component replacement procedures on page 6.





a [XYN2+F6FZ]

b [XTN26+6G]

■ Measurements and Adjustments

Cautions:
- It is very dangerous to look at or touch the laser beam. (Laser radiation is invisible.) With the unit turned "on", laser radiation is emitted from the pickup lens.
- Avoid exposure to the laser beam, especially when performing adjustments.

This unit SL-CH510 is designed to operate on power supplied from the Amplifier SE-CH510 through the Tuner/Sound Processor ST-CH510.
When connecting the unit to other system components, do not connect to the Amplifier SE-CH510 directly. Be sure to connect this unit through the Tuner/Sound Processor ST-CH510.
When operating the unit SL-CH510 alone for testing and servicing, without having power supplied from the Amplifier SE-CH510 and the Tuner/Sound Processor ST-CH510, use the following method.

Power Supply to This Unit alone

Apply 11V AC power to the section between AC11V (AC) of the coil (L1) and the jumper J1 (GND) as well as the section between AC11V (AC) of the coil (L2) and the jumper J1 (GND). (10V AC power can be also applied when using power supply tool.) **(Shown in Fig. 1)**

To Check Signals

Connect the oscilloscope or the speaker with built-in amplifier to the section between LINE OUT (Lch) of the resistor R815 and the GND point of the jumper J1 as well as the section between LINE OUT (Rch) of the resistor R816 and the GND point of the jumper J1 and check if the signals are outputting from this unit. **(Shown in Fig. 1)**

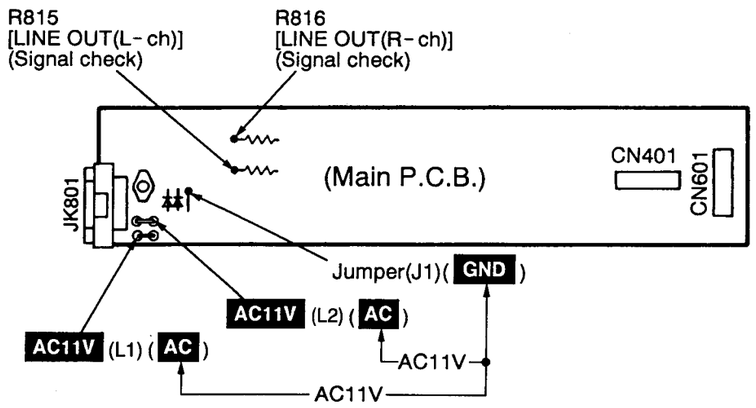


Fig. 1

(Apply 10 V AC power when using power supply tool.)

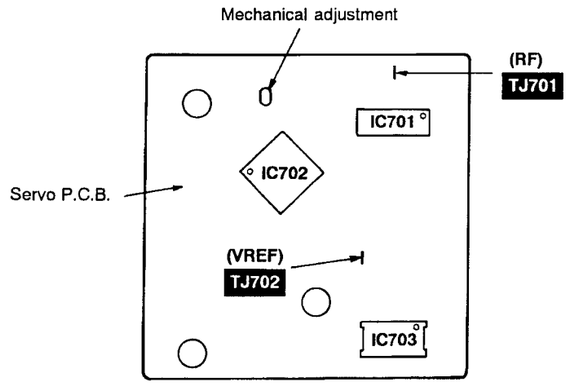


Fig. 2

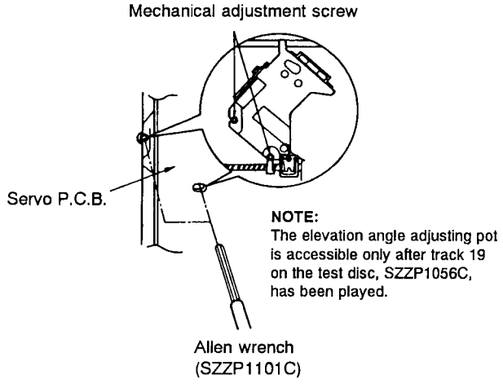

Mechanical adjustment screw
Servo P.C.B.
NOTE:
The elevation angle adjusting pot is accessible only after track 19 on the test disc, SZZP1056C, has been played.
Allen wrench
(SZZP1101C)

Fig. 3

● Preparation of Adjustment

1. Insert test disc into the unit.
2. Turn the power of this unit off and then turn it on. (The CD unit is adjusted automatically with it stood.)

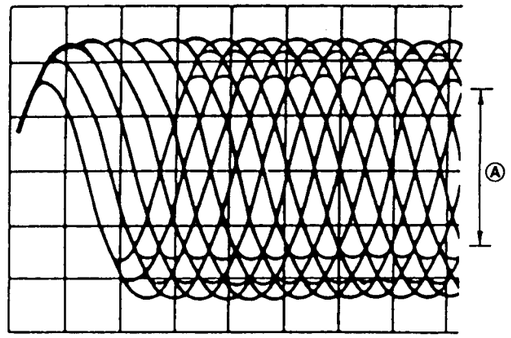
Measuring Instruments and Special Tools

- Test disc
  1. Playability test disc (SZZP1054C)
  2. Uneven test disc (SZZP1056C)
- Allen wrench (M2.0) (SZZP1101C)
- Oscilloscope

(1) MECHANICAL ADJUSTMENT

- When the traverse deck is replaced, making adjustments is not necessary. (The traverse deck ass'y is already adjusted.)
- Make adjustments to improve playability when the traverse deck has not been replaced. Make the electrical adjustments first.

1. Connect the oscilloscope's CH. 1 probe across TJ701 (+) and TJ702 (VREF) on the Servo P.C.B. (Shown in Fig. 2)
   Oscilloscope setting:
   VOLT ..... 200 mV
   SWEEP ..... 0.5 μsec
   Input coupling ..... AC
2. Switch the player power **ON**, and play track **19** on the test disc (SZZP1056C).
3. Leave the player in Play mode and place it as shown in the figure on the right.
4. Alternately adjust the two mechanical adjusting screws with the 2.0 mm allen wrench (SZZP1101C) unit the RF signal amplitude on the oscilloscope is maximize. (Shown in Fig. 3)
5. After completing the adjustment, lock the mechanical adjustments with lock paint (RZZ0L01).



Ⓐ **Maximize the amplitude.**

(2) CHECK OF PLAY OPERATION AFTER ADJUSTMENT

- Checking Skip Search
  1. Play an ordinary musical program disc.
  2. Press the skip button to check for normal skip search operation (in both the forward and reverse direction).
- Checking Manual Search
  1. Play an ordinary musical program disc.
  2. Press the manual search button to check for smooth manual search operations at either low or high speed (in both the forward and reverse directions).
- Checking playability
  1. Play the 0.7 mm black dot and the 0.7 mm wedge on the test disc (SZZP1054C) and verify that no sound skip or noise occurs.
  2. Play the middle tracks of the uneven test disc and verify that no sound skip or noise occurs.

■ Schematic Diagram ● Optical Pickup/Servo circuit (Parts list on Pages 33~35)

A SERVO CIRCUIT

△OPTICAL PICKUP

Q701 2SB709STW LASER POWER DRIVE

IC701 AN8802SCE1V SERVO AMP

IC702 MN66271RA SERVO PROCESSOR/DIGITAL SIGNAL PROCESSOR/DIGITAL FILTER/D/A CONVERTER

IC703 AN8389SE1 FOCUS COIL/TRACKING COIL/ TRAVERSE MOTOR/ SPINDLE MOTOR DRIVE

TRACKING COIL

FOCUS COIL

M702 SPINDLE MOTOR

M701 TRAVERSE MOTOR

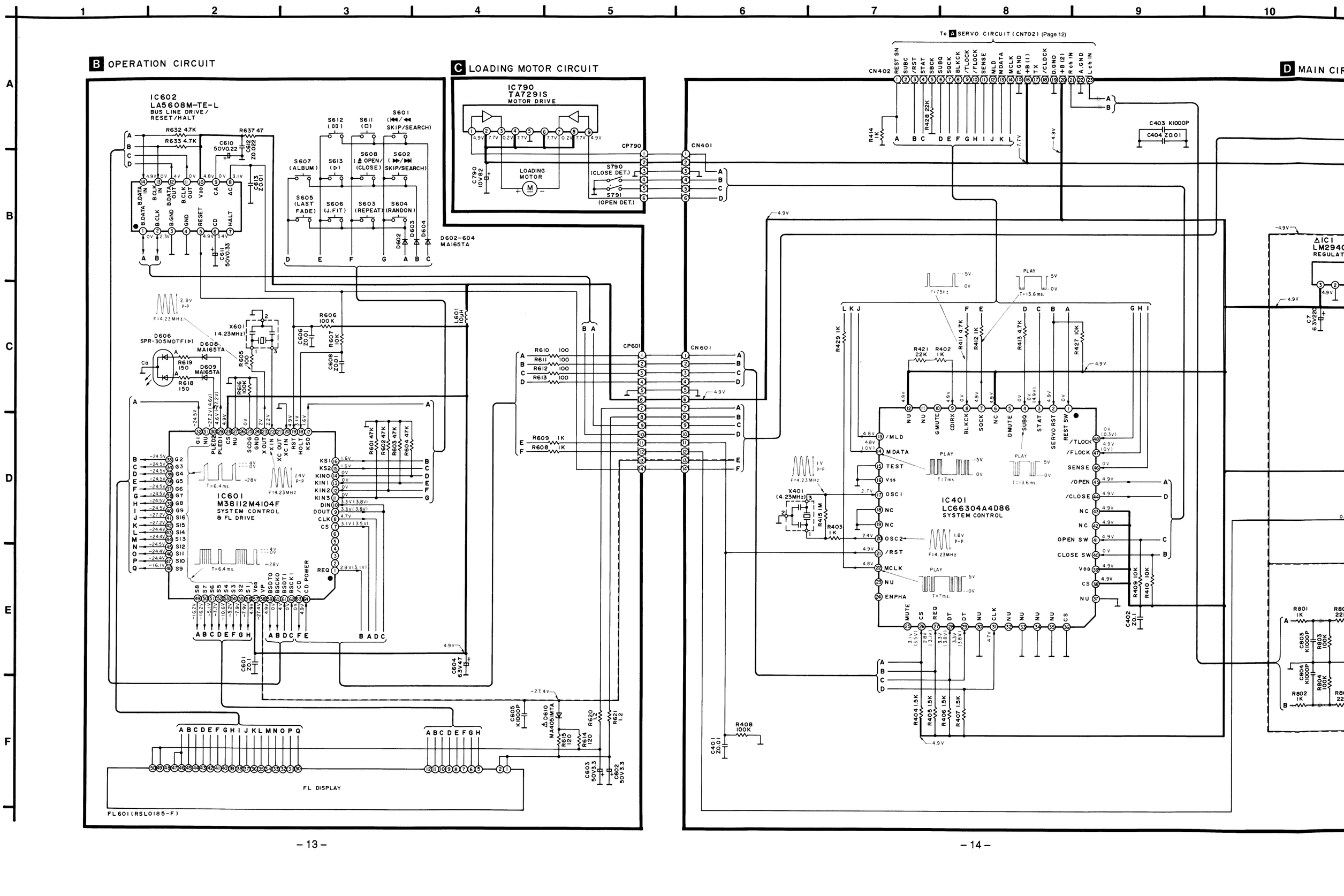
CN701

CN702

S701 (REST)

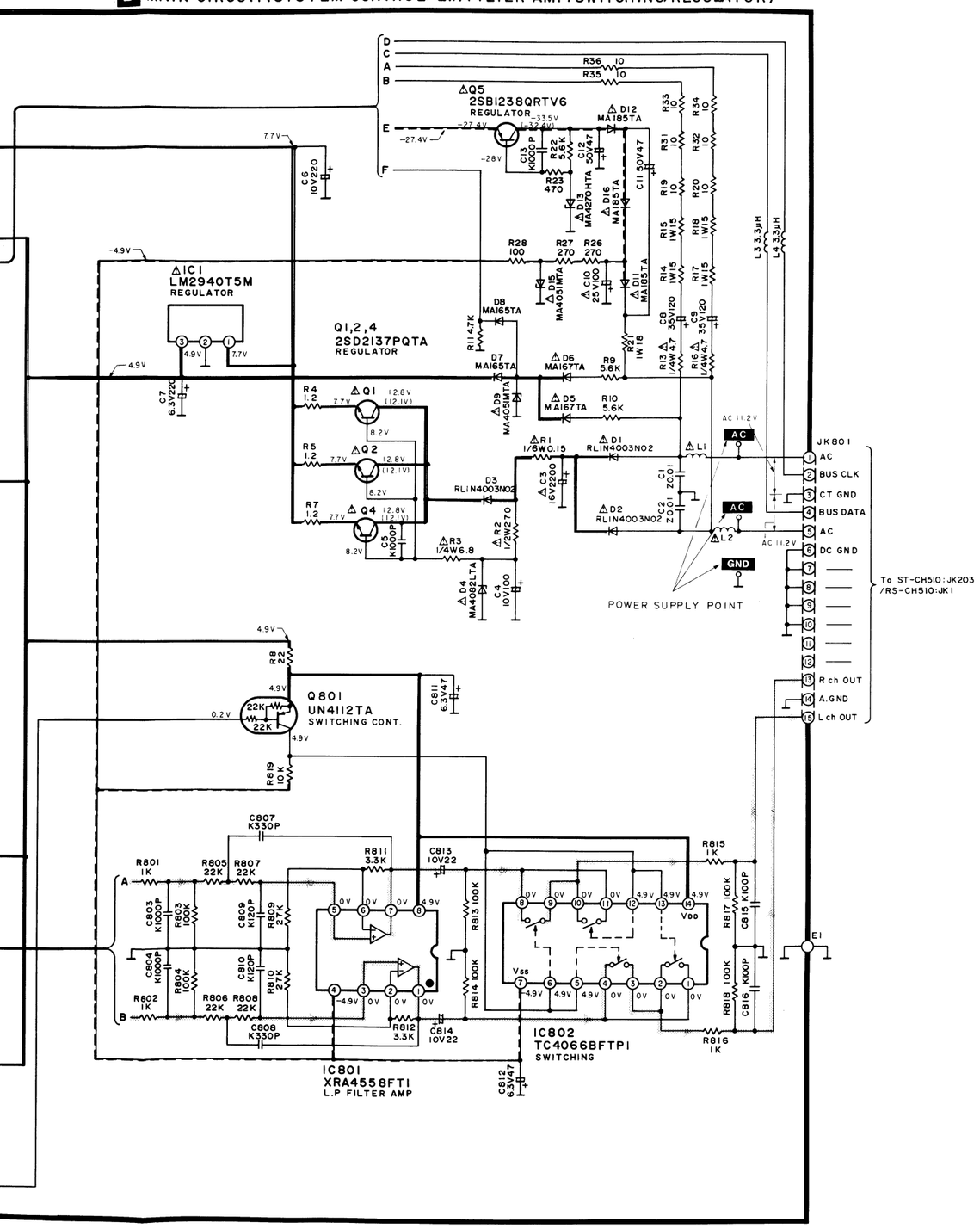
To D MAIN CIRCUIT (CN402) (Page 14)

● Loading Motor/ Operation/ Main circuit (Parts list on Pages 33~35)



10 11 12 13 14 15 16 17 18 19

D MAIN CIRCUIT(SYSTEM CONTROL/L.P. FILTER AMP/SWITCHING/REGULATOR)



- This schematic diagram may be modified at any time with the development of new technology.

Notes:

- **S601** : R. Skip/Search switch (⏮/◀◀)
- **S602** : F. Skip/Search switch (▶▶/⏭)
- **S603** : Repeat switch (REPEAT)
- **S604** : Random play switch (RANDOM)
- **S605** : AI edit (LAST FADE) switch
- **S606** : AI edit (J.FIT) switch
- **S607** : AI edit (ALBUM) switch
- **S608** : Disc tray open/close switch (⏏ OPEN/CLOSE)
- **S611** : Stop switch (□)
- **S612** : Pause switch (▯▯)
- **S613** : Play switch (▷)
- **S701** : Reset switch
- **S790** : Disc tray close detection switch
- **S791** : Disc tray open detection switch
- Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.

  No mark : CD STOP
  ( ) : CD PLAY [1kHz, L + R, 0 dB]

- Important safety notice:
  Components identified by ⚠ mark have special characteristics important for safety. Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used. When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.

- **Caution!**
  IC and LSI are sensitive to static electricity.
  Secondary trouble can be prevented by taking care during repair.
  Cover the parts boxes made of plastics with aluminum foil.
  Ground the soldering iron.
  Put a conductive mat on the work table.
  Do not touch the legs of IC or LSI with the fingers directly.

- **Voltage and signal line**
  ——— : Positive voltage line
  — — — : Negative voltage line
  ⇨ : CD signal Line

- The supply part number is described alone in the replacement parts list.

Part No.	Production Part No.	Supply Part No.
IC1	LM2940T5M	LM2940T5

SL-CH510	SL-CH510

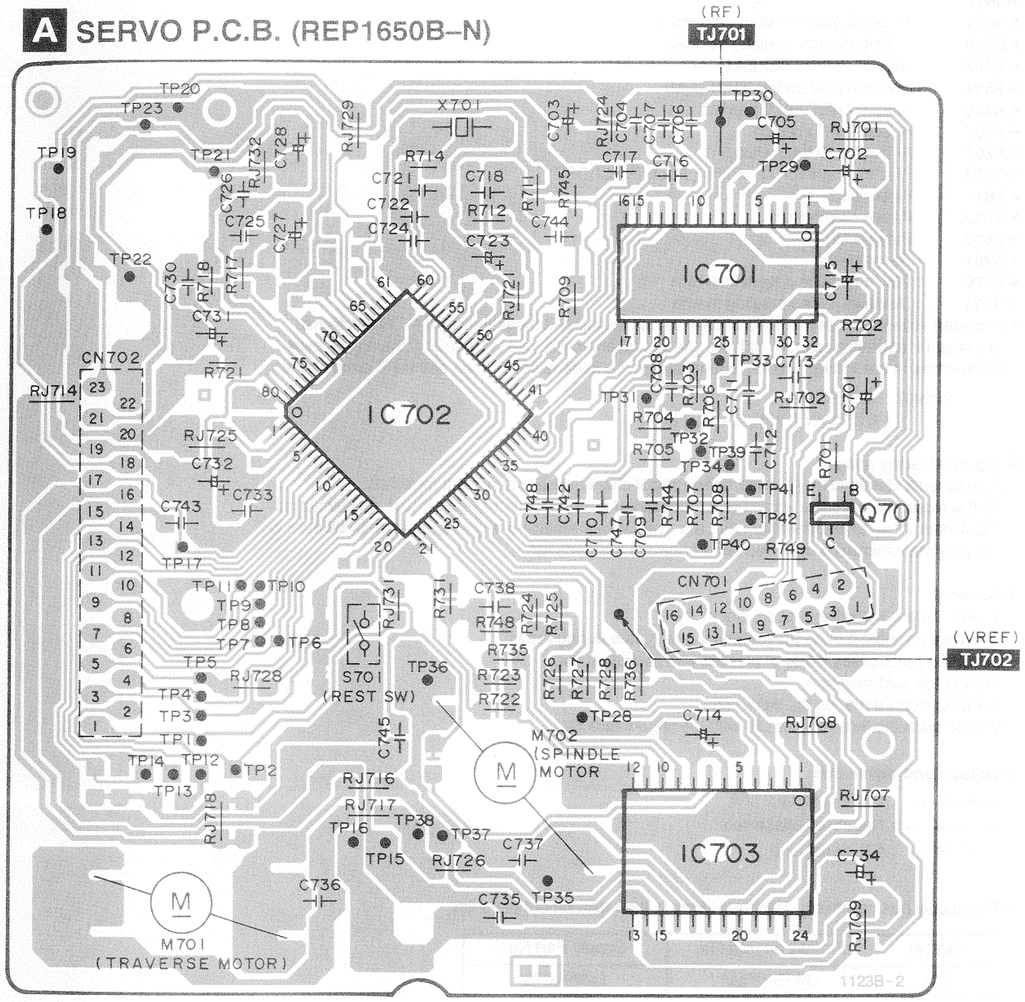
■ Printed Circuit Board Diagram

1 2 3 4 5 6 7 8 9 10

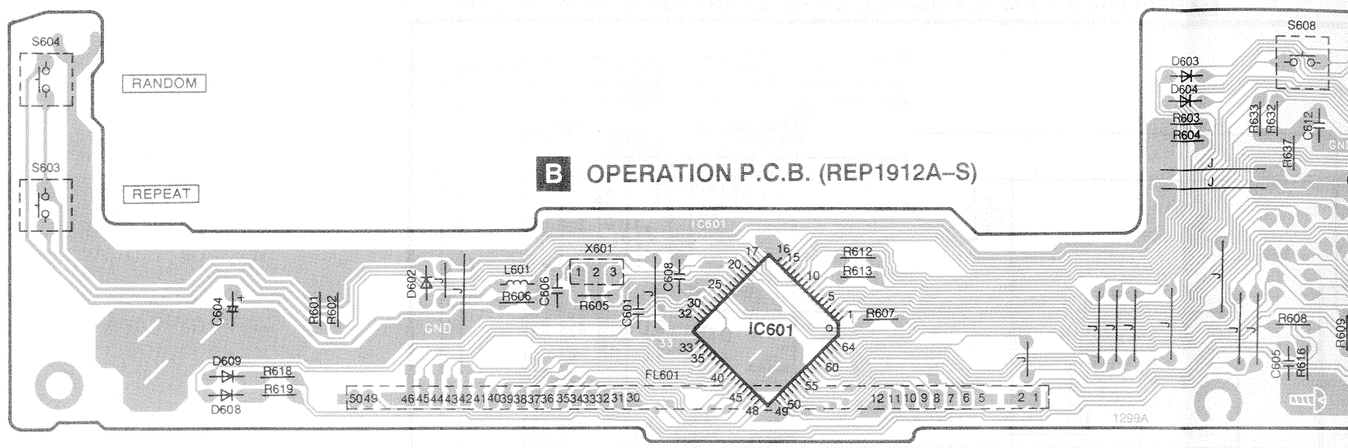
A B C D E F

● This circuit board diagram may be modified at any time with the development of new technology.

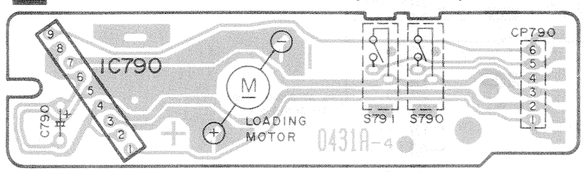
A SERVO P.C.B. (REP1650B–N)



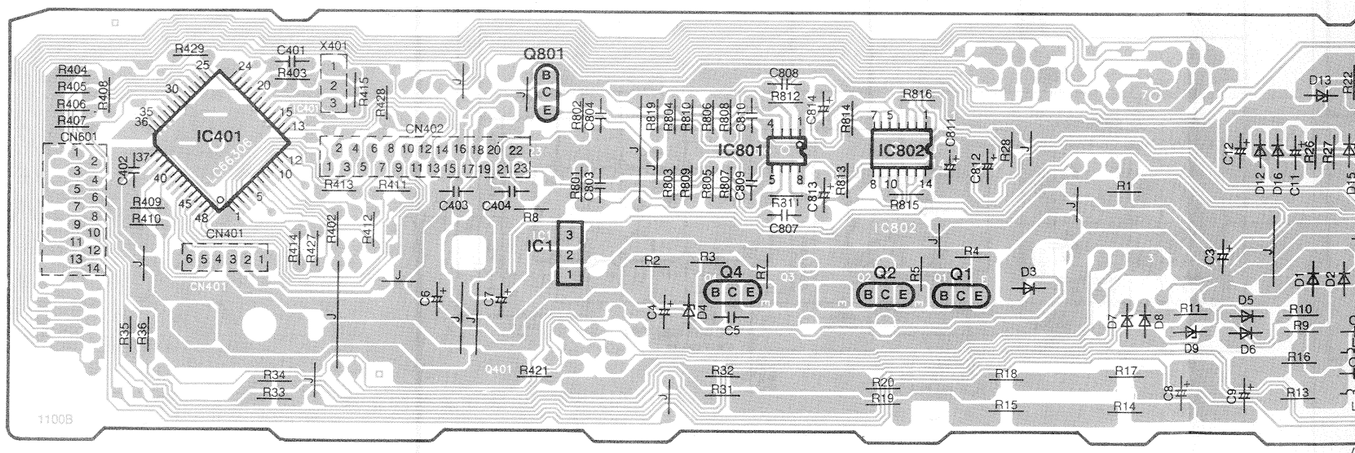
B OPERATION P.C.B. (REP1912A–S)

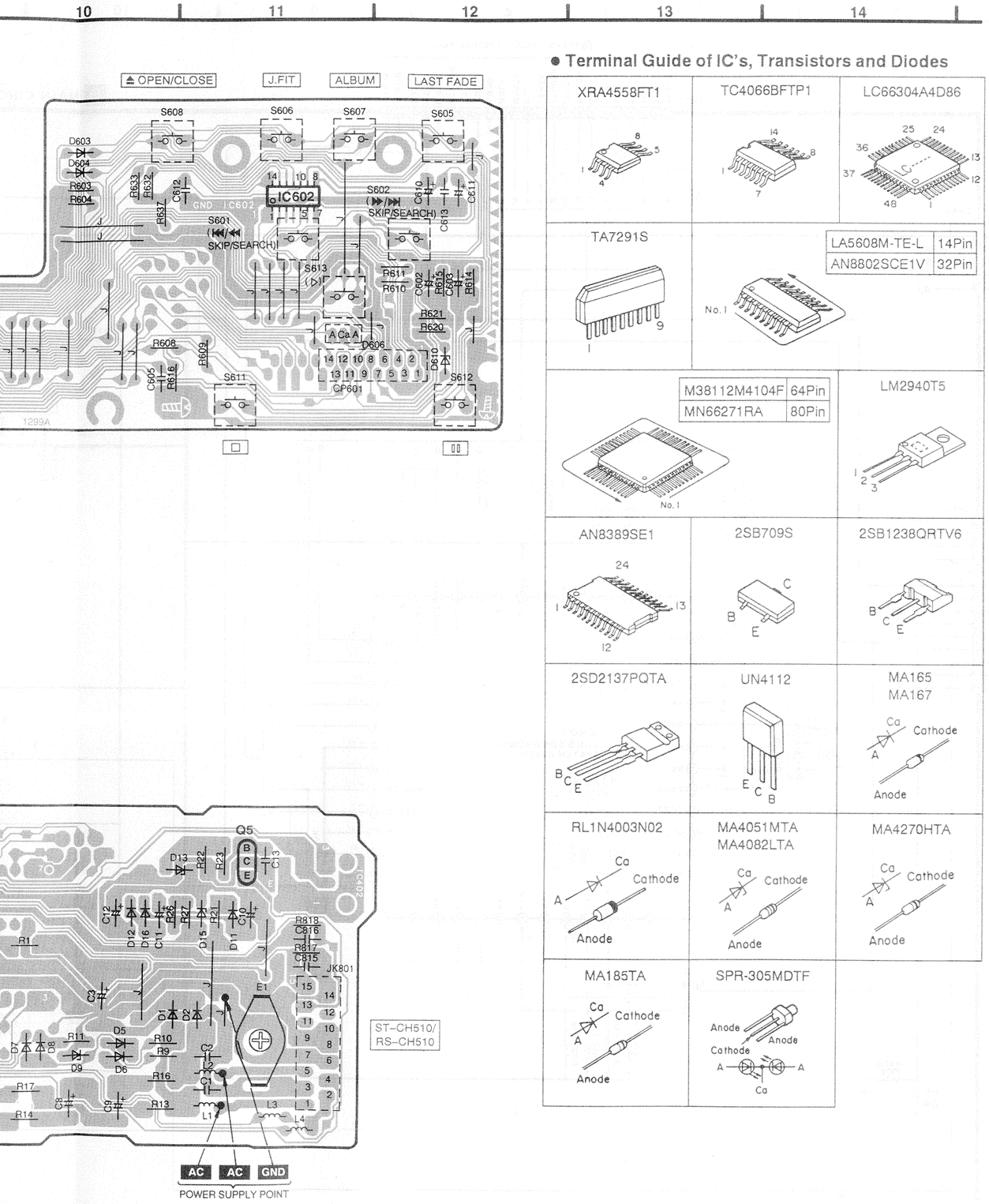


C LOADING MOTOR P.C.B. (REP0767)



D MAIN P.C.B. (REP1911B–M)

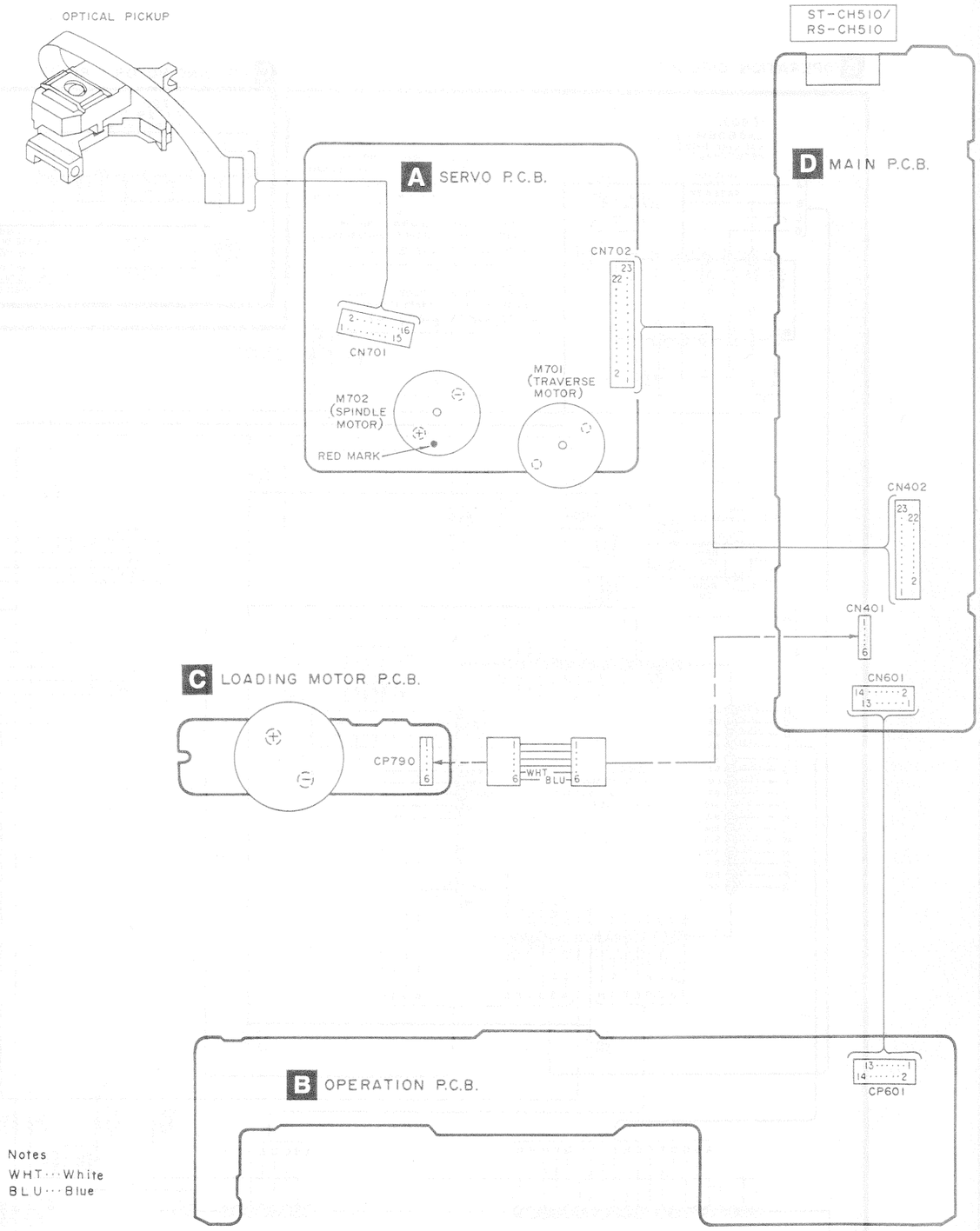




● Terminal Guide of IC's, Transistors and Diodes

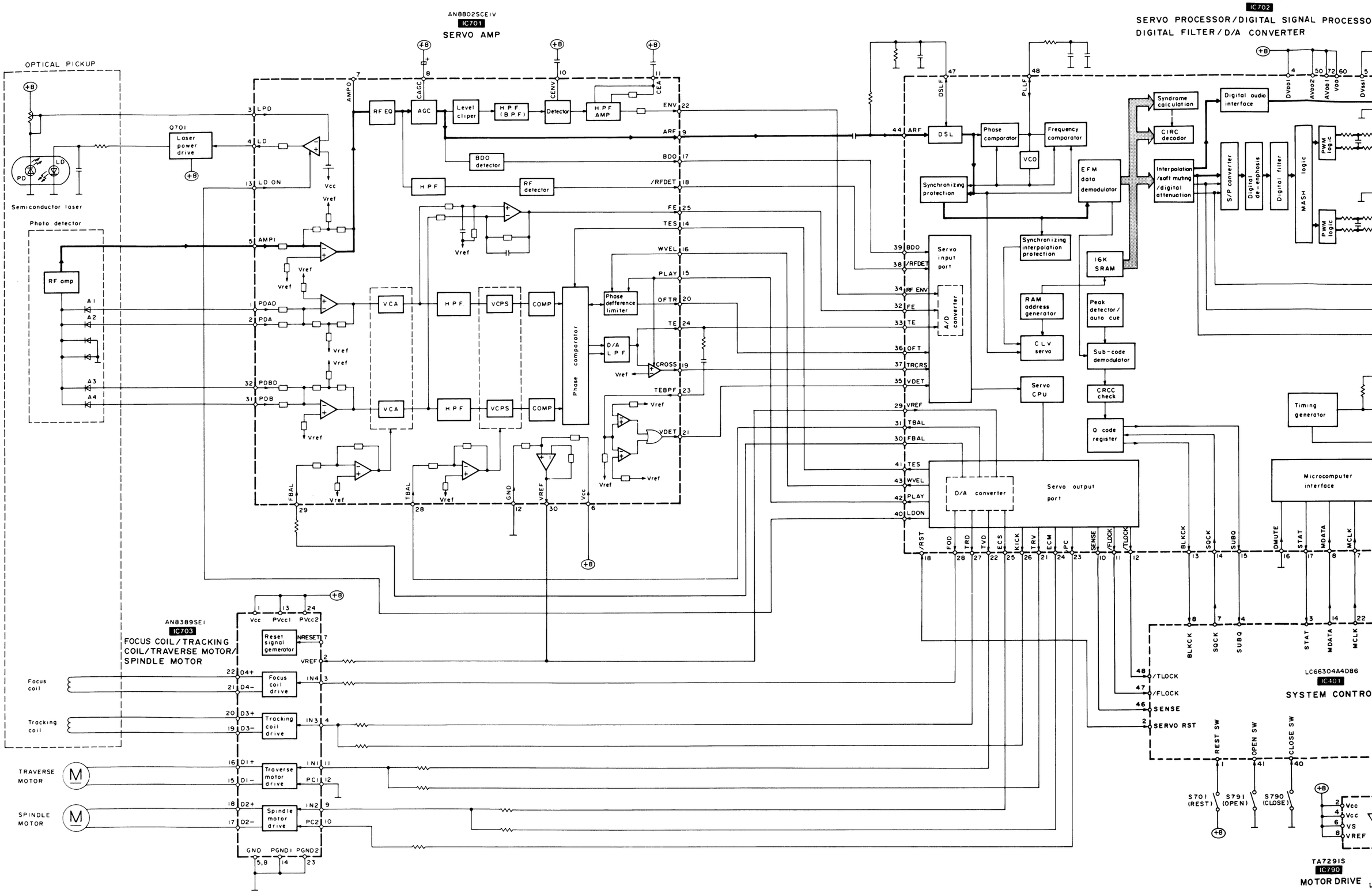
XRA4558FT1	TC4066BFTP1	LC66304A4D86
TA7291S	LA5608M-TE-L 14Pin AN8802SCE1V 32Pin	
M38112M4104F 64Pin MN66271RA 80Pin		LM2940T5
AN8389SE1	2SB709S	2SB1238QRTV6
2SD2137PQTA	UN4112	MA165 MA167
RL1N4003N02	MA4051MTA MA4082LTA	MA4270HTA
MA185TA	SPR-305MDTF	

■ Wiring Connection Diagram



Notes
WHT···White
BLU···Blue

■ Block Diagram



MN6627IRA
IC702
SERVO PROCESSOR/DIGITAL SIGNAL PROCESSOR/
DIGITAL FILTER/D/A CONVERTER

+B
DVDD1 4
AVDD2 50
AVDD1 72
VDD 60
DVSS 5
AVSS1 74
AVSS2 51
VSS 57
Digital audio interface
TX 6
Syndrome calculation
CIRC decoder
Interpolation /soft muting /digital attenuation
S/P converter
Digital de-enphasis
Digital filter
MASH logic
PWM logic
OUTL 73
OUTR 75
LRCK 2
BCLK 1
SR DATA 3
X2 59
X1 58
X701
Timing generator
SMCK 19
Microcomputer interface
BLKCK 13
SOCK 14
SUBQ 15
DMUTE 16
STAT 17
MDATA 8
MCLK 7
MLD 9
X401
BLKCK 8
SQCK 7
SUBQ 14
STAT 3
MDATA 14
MCLK 22
MLD 13
OSCI 17
OSC2 20
/TLOCK
/FLOCK
SENSE
SERVO RST
LC66304A4D86
IC401
SYSTEM CONTROL
/RST 21
REQ 27
CS 26
CLK 31
DT 28
DT 29
CD POWER 64
REQ 1
CS 7
CLK 8
D OUT 9
D IN 10
REST SW
OPEN SW
CLOSE SW
S701 (REST)
S791 (OPEN)
S790 (CLOSE)
/OPEN 45
/CLOSE 44
Vss 16
39
TA7291S
IC790
MOTOR DRIVE
Vcc 2
Vcc 4
VS 6
VREF 8
GND 5
LOADING MOTOR

XRA4558FTI
IC801
L.P. FILTER AMP
TC4066BFTPI
IC802
SWITCHING
Q801
Switching control
RST 19
VDD 57
VP 58
GND 24
/CD 63
X IN 22
X OUT 23
X601
BSCK O 60
BSCK I 62
BSDT O 59
BSDT I 61
HOLT 18
M38112M4104F
IC601
SYSTEM CONTROL/FL DRIVE
KIN3 11
KIN2 12
KIN1 13
KIN0 14
KS2 15
KS1 16
KS0 17
S1 ~ S16 56 41
G9 ~ G1 40 32
KEY MATRIX
S601-608,611-613
FL DISPLAY
FL601

LA5608M-TE-L
IC602
BUS LINE DRIVE/RESET/HALT
Standard voltage

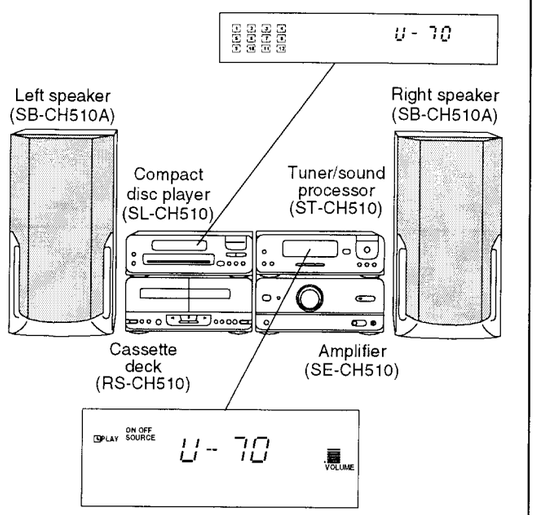
JK801
Lch OUT 15
Rch OUT 13
BUS DATA 4
BUS CLK 2
DC GND 6
A GND 14
AC 5
CT GND 3
AC 1

D8
D7
D9
D5,6
LM2940T5M
IC1
Regulator
Q1,2,4,D4
Regulator
D1,2
D11,12,16
D15
Q5,D13
Regulator
D601

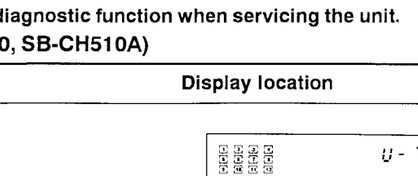
■About the Self-Diagnostic Mode

This unit is equipped with a self-diagnostic function which, in the event of a malfunction, automatically displays a code indicating the nature of the malfunction. Use this self-diagnostic function when servicing the unit.

SC-CH510 (SL-CH510, ST-CH510, SE-CH510, RS-CH510, SB-CH510A)

Display method	Display location
To display the malfunction code U-70:.....Automatically displays on the tuner/sound processor and the CD player when a malfunction occurs. F-61 .....Automatically displays on the tuner/sound processor when a malfunction occurs. **To return to the normal display** **1. For U-70:** ● Press an operation button (any button other than the OPEN/CLOSE button) on the unit (tuner/sound processor or CD player) which displayed "U-70". ● To re-display the code, switch the power off (POWER STANDBY button), and then switch power back on again. **2. For F-61:** ● If "F-61" is displayed, the power will automatically be switched off and the standby indicator will light up. ● "F-61" will be displayed for 3 seconds, and then the clock will be displayed. ● To re-display the code, switch the power on. "F-61" will be re-displayed, and then after 3 seconds the clock will be displayed and the power will automatically switch off.	

Display contents

Display code	Problem or condition	Correction procedure
U-70 (displayed automatically)	A bus-line communications error has occurred as a result of the flat cables being inserted incorrectly, thus preventing the system from operating. 1. If "U-70" is displayed on the tuner/sound processor, the tape deck cannot be operated by remote control. 2. If "U-70" is displayed on the CD player, the CD player cannot be operated by remote control.	 1. To check for correct insertion of the flat cables ①Match each connector with the color (black/white) of the connection port and insert until you hear a click. ②Insert the flat cables at the back of the unit in the order indicated. Make sure the which side of the cable is on your right side. 2. Breakage of flat cable (Check and replace as necessary.) 3. If the problem is not corrected by items (1.) and (2.) above, this indicates a faulty IC. **SL-CH510:** IC601 (M38112M4102F) IC602 (LA5608M-TE-L) Check these IC's and replace as necessary.
F-61	When the power switch is switched on, it automatically switches back off, making it impossible to switch power on.	1. Faulty amplifier (SE-CH510) output IC (IC501). 2. Fan motor is burnt out, locked, or stopped. 3. Replace the output IC or fan motor as necessary.

■ Automatic Adjustment Results Display Function

Self-Check Function

The SL-CH510 unit has a function that uses the FL display board to indicate the results of automatic adjustment of the servo-circuit (tracking, focus, offset, etc.) as error codes. The error code display indicates the location of failures from automatic adjustment circuit.

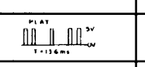
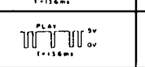
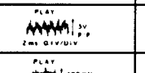
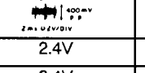
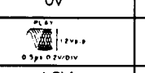
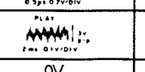
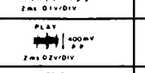
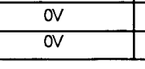
The following procedure displays the error codes from the self-diagnostic function.

● Procedure for displaying automatic adjustment codes

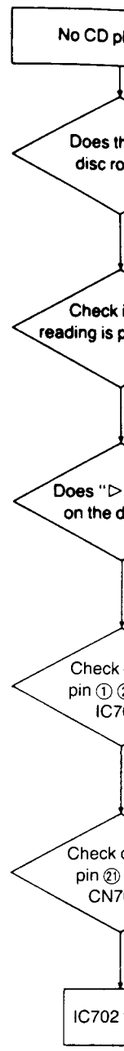
1. Set the unit in the servo P.C.B. checking mode (refer to page 6).
2. Turn on the power supply switch (refer to page 9) while pressing the STOP (■) and REPEAT buttons at the same time.
3. The "C-2" code is displayed 2 or 3 seconds later to indicate the automatic adjustment mode.
   Note:
   When the SL-CH510 is removed from its set and then operated, "U-70" is displayed on the FL display as an error code. Even if the buttons are pushed continuously after this indication, the display will automatically change to "C-2".
4. After automatic adjustment, the code display indicates the location of failures in the servo circuit.

● Troubleshooting using the automatic adjustment code

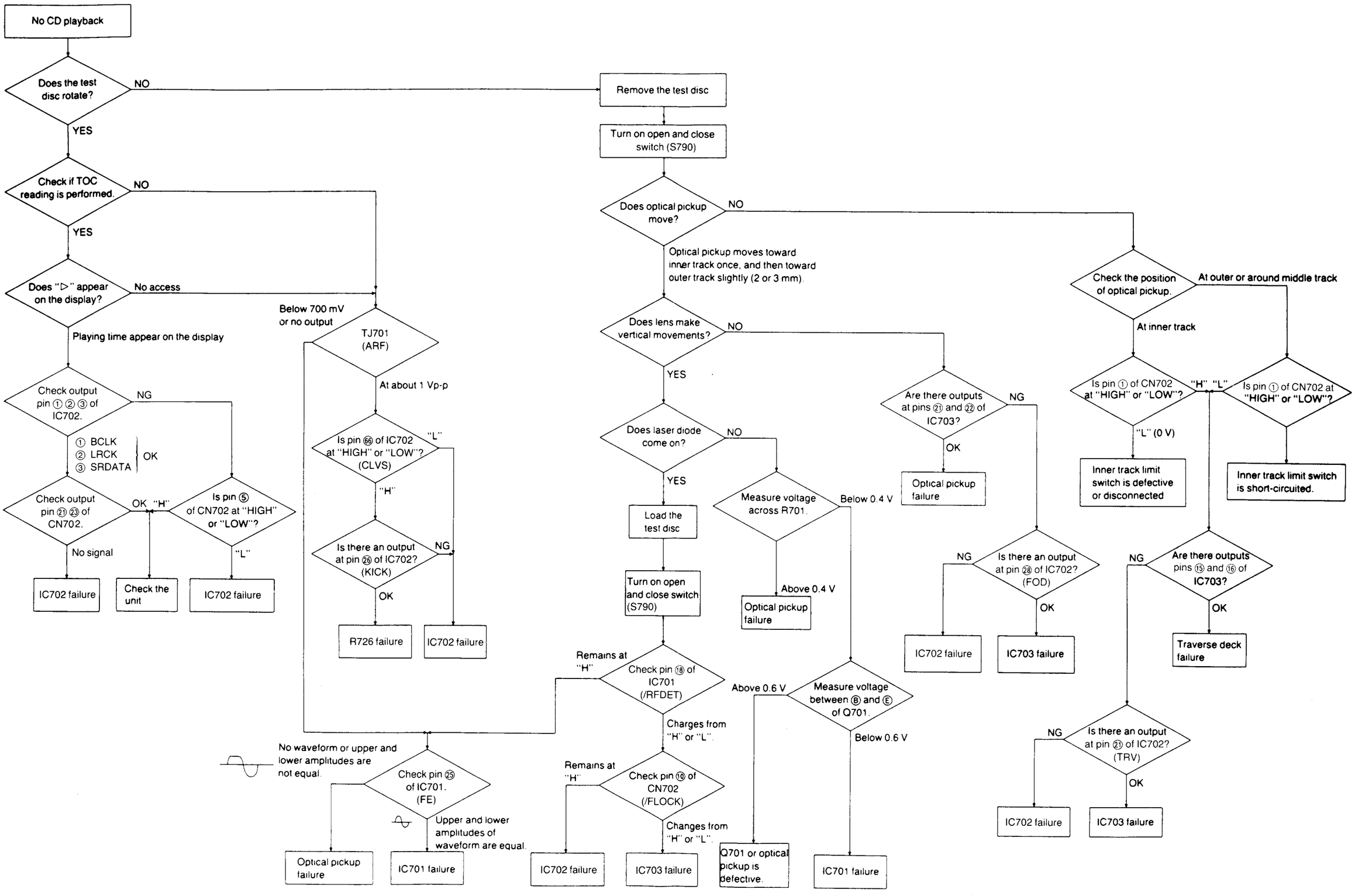
Notes:
1. If "E-00" is displayed as an error code, this means no error was found.
2. Check the disc and laser-detector lens for damage, contamination or stains.

FL error code display	Symptom	Probable cause	Signal to check		Normal voltage and waveform values	
			Location	Signal name	PLAY	STOP
E-01	Focus and tracking offset adjustments not completed in specified time period.	① Clocks X1 and X2, power supply VDD, and reset/RST, all on IC702. ② MDATA, MCLK, MLD, and SENSE signals to/from mechanism controller.	IC702 ⑧ pin	MDATA		4.8V
			IC702 ⑦ pin	MCLK		4.8V
			IC702 ⑨ pin	MLD		
			IC702 ⑩ pin	SENSE	0V	0V
			IC702 ⑱ pin	/RST	4.9V	4.9V
			IC702 ⑱ pin	X1		
			IC702 ⑲ pin	X2		
E-03 E-05 E-07 E-09 E-0B E-0D E-0F	Disc play unstable	① Scratches or contaminants on disc surface ② Focus and Tracking servo circuits (check waveforms, voltages, and part values.) ③ Spindle driver circuit ④ Optical pickup	IC702 ㉜ pin	F E		2.4V
			IC702 ㉝ pin	T E		2.4V
			IC702 ㉘ pin	FOD	2.4V	2.4V
			IC702 ㉗ pin	TRD	2.4V	2.4V
			IC702 ㉖ pin	KICK	2.4V	2.4V
			IC702 ⑪ pin	/FLOCK	0V	4.9V
			IC702 ㊳ pin	/RF DET	0V	4.8V
			TJ701	R F		3.4V
			IC702 ⑰ pin	STAT	4.9V	0V
E-4 E-6 E-C E-E	Best "eye" (PD balance) adjustment not completed in specified time period.	① Scratches or contaminants on disc surface ② Focus servo circuits (check waveforms, voltages, and part values.) ③ Optical pickup	IC702 ㉚ pin	FBAL	2.5V ± 1.25V	2.5V ± 1.25V
			TJ701	R F		3.4V
			IC702 ㉜ pin	F E		0V
			IC702 ㊱ pin	O F T	0V	0V
			IC702 ⑫ pin	/TLOCK	0V	0V
E-8 E-A	Focus or Tracking gain adjustment not completed in specified time period.	① Scratches or contaminants on disc surface ② Focus and Tracking servo circuit (check waveforms, voltages, and part values.) ③ Optical pickup	IC702 ㉜ pin	F E		2.4V
			IC702 ㉝ pin	T E		2.4V
			IC702 ㊱ pin	O F T	0V	0V
			IC702 ⑫ pin	/TLOCK	0V	0V

■ Trou



■ Troubleshooting Guide



■ Function of IC Terminals

• IC401 (LC66304A4D86)

Pin No.	Terminal Name	I/O	Function
1	REST SW	I	Innermost track sense switch detection signal input
2	SERVO RST	O	Reset signal output
3	STAT	I	Status signal input
4	SUBQ	I	Sub-code Q data input
5	D MUTE	—	Unused, open
6	NC	—	Connected to VDD (+5 V)
7	SQCK	O	Sub-code Q data clock output
8	BLKCK	I	Sub-code block data clock input
9	ODI RX	I	Connected to VDD (+5V)
10	GMUTE	—	Unused, open
11	NU	—	
12	NU	—	Connected to VDD (+5 V)
13	/MLD	O	Microprocessor command load signal output
14	MDATA	O	Microprocessor command data output
15	TEST	—	Connected to GND
16	VSS	—	
17	OSC1	I	Clock signal input from X401 (4.23 MHz)
18	NC	—	Connected to GND
19	NC	—	
20	OSC2	O	Clock signal output for X401 (4.23 MHz)
21	/RST	I	Reset signal input
22	MCLK	O	Microprocessor command clock output
23	NU	—	Unused, open
24	ENPHA	—	
25	MUTE	—	
26	CS	I	Input the serial data communication starting signal from IC601 of system control
27	REQ	I	Input the command request data signal from IC601 of system control
28	DT	I/O	Input/output the serial data signal
29			
30	NC	—	Connected to GND
31	CLK	O	Output the serial clock signal from IC601 of system control
32	NU	—	Unused, open
33	NU	—	Connected to GND
34			
35			
36	CS	—	
37	NU	—	
38	CS	—	Connected to VDD (+5 V)
39	VDD	I	Power supply (+5 V)
40	CLOSE SW	I	Disc tray "close" sense switch detection signal input
41	OPEN SW	I	Disc tray "open" sense switch detection signal input
42	NC	—	Connected to VDD (+5 V)
43			
44	/CLOSE	O	Disc tray "close" command signal output
45	/OPEN	O	Disc tray "open" command signal output
46	SENSE	I	Sense signal input
47	/FLOCK	I	Focus servo command signal input
48	/TLOCK	I	Tracking servo command signal input

• IC601 (M38112M4104F)

Pin No.	Terminal Name	I/O	Function
1	REQ	O	Output the command request data signal for IC401 of system control
2	GRST	—	Unused, open
3 ~ 6	NC	—	Unused, open
7	CS	O	Output the serial communication starting signal for IC401 of system control
8	CLK	I	Input the serial clock signal for IC401 of system control
9	DOUT	O	Output the serial data signal for IC401 of system control
10	DIN	I	Input the serial data signal from IC401 of system control
11 ~ 14	KIN3 ~ KIN0	I	Signal input from operation key
15 ~ 17	KS2 ~ KS0	O	Strobe signal output for operation key scanning
18	HOLT	I	Detection signal input for an electricity failure
19	RST	I	Reset signal input
20	XCIN	—	Connected to GND
21	XCOUT	—	Unused, open
22	XIN	I	Clock signal input from X601 (4.23 MHz)
23	XOUT	O	Clock signal output for X601 (4.23 MHz)
24	GND	—	Connected to GND
25	SCDG	I	Connected to GND
26	GMUTE	—	Unused, open
27	NU	—	Connected to GND
28	CS	—	Connected VDD (+5 V)
29	PLED1	O	Output signal for PLAY LED lighting
30	PLED2		
31	NU	—	Unused, open
32 ~ 40	G1 ~ G9	O	Grid signal output for FL display
41 ~ 56	S16 ~ S1	O	Segment signal output for FL display
57	VDD	—	Supplied +5 V
58	VP	—	Supplied power to FL display for pulling down
59	BSDTO	O	Data signal output to bus
60	BSCKO	O	Clock signal output to bus
61	BSDTI	I	Data signal input from bus
62	BSCKI	I	Clock signal input from bus
63	/CD	O	AF signal switching
64	CD POWER	O	Reset signal output for IC401

•IC703 (AN8389SE1)

Pin No.	Terminal Name	I/O	Function
1	Vcc	I	Power supply
2	VREF	I	VREF input
3	IN4	I	Motor driver (4) input
4	IN3	I	Motor driver (3) input
5	GND	—	Ground connection
6	NC	—	Ground connection
7	NRESET	—	Reset input
8	GND	—	Ground connection
9	IN2	I	Motor driver (2) input
10	PC2	I	PC2 (power cut) input
11	IN1	I	Motor driver (1) input
12	PC1	I	PC1 (power cut) input (no use, open)
13	PVcc1	I	Power supply (1) for driver
14	PGND1	—	Ground connection (1) for driver
15	D1−	O	Motor driver (1) reverse-action output
16	D1+	O	Motor driver (1) forward-action output
17	D2−	O	Motor driver (2) reverse-action output
18	D2+	O	Motor driver (2) forward-action output
19	D3−	O	Motor driver (3) reverse-action output
20	D3+	O	Motor driver (3) forward-action output
21	D4−	O	Motor driver (4) reverse-action output
22	D4+	O	Motor driver (4) forward-action output
23	PGND2	—	Ground connection (2) for driver
24	PVcc2	I	Power supply (2) for driver

•IC701 (AN8802SCE1V)

Pin No.	Terminal Name	I/O	Function
1	PDAD	I	PD A channel signal input with delay
2	PDA	I	PD A channel signal input without delay
3	LPD	I	Laser PD connection
4	LD	O	Power supply for LD driving
5	AMPI	I	RF amplifier input
6	Vcc	I	Power supply connection
7	AMPO	O	RF amplifier output (no use, open)
8	CAGC	I	AGC loop filter connection
9	ARF	O	RF AGC output
10	CENV	I	Capacitor connection for RF detection
11	CEA	I	Capacitor connection for HPF amplifier
12	GND	—	Ground connection
13	LDON	I	ON/OFF input of LD APC ("H": ON, "L": OFF)
14	TES	I	Tracking error shunt signal input ("H": shunt)
15	PLAY	I	Play signal input ("H": PLAY)
16	WVEL	I	WVEL control
17	BDO	O	BDO output
18	/RFDET	O	NRFDET output
19	CROSS	O	CROSS output
20	OFTR	O	OFTR output
21	VDET	O	VDET output
22	ENV	O	ENV output
23	TEBPF	I	Vibration detection input
24	TE	O	Tracking error output
25	FE	O	Focus error output
26	PTO	O	Potentioamplifier output (no use, open)
27	PTI	I	Potentioamplifier inversion input (no use, open)
28	TBAL	I	Tracking balance input
29	FBAL	I	Focus balance input
30	VREF	O	VREF output
31	PDB	I	PD B channel signal input without delay
32	PDBD	I	PD B channel signal input with delay

•IC702 (MN66271RA)

Pin No	Terminal Name	I/O	Function
1	BCLK	—	Bit clock output for serial data (no used, open)
2	LRCK	—	L/R identification signal output (no use, open)
3	SRDATA	—	Serial data output (no used, open)
4	$DV_{DD}1$	I	Power supply input (for digital circuit)
5	$DV_{SS}1$	—	GND (for digital circuit)
6	TX	O	Digital audio interface signal output
7	MCLK	I	Microprocessor command clock signal input (Latches data at first transition)
8	MDATA	I	Microprocessor command data signal input
9	MLD	I	Microprocessor command load signal input
10	SENSE	O	Sence signal output (OFT, FESL, MAGEND, NAJEND, POSAD, SFG)
11	/FLOCK	O	Focus servo feeding signal output ("L": Feed)
12	/TLOCK	O	Tracking servo feeding signal output ("L": Feed)
13	BLKCK	O	Sub-code block clock signal output (fBLKCK = 75 Hz during normal playback)
14	SQCK	I	External clock signal input for sub-code Q register
15	SUBQ	O	Sub-code Q code output
16	DMUTE	I	Muting input ("H": Mute)
17	STAT	O	Status signal output (CRC, CUE, CLVS, TTSTVP, FCLV, SQCK)
18	/RST	I	Reset input
19	SMCK	—	1/2-divided clock signal of crystal oscillating at MSEL = "H" (fSMCK = 8.4672 MHz) 1/4-divided clock signal of crystal oscillating at MSEL = "L" (fSMCK = 4.2336 MHz)
20	PMCK	—	1/192-divided clock signal of crystal oscillating (fPMCK = 88.2 KHz) (no use, open)
21	TRV	O	Traverse forced feed output
22	TVD	O	Traverse drive output
23	PC	O	Spindle motor ON signal output ("L": ON)
24	ECM	O	Spindle motor drive signal output (forced mode output)
25	ECS	O	Spindle motor drive signal output (servo error signal output)
26	KICK	O	Kick pulse output
27	TRD	O	Tracking drive output
28	FOD	O	Focus drive output
29	VREF	I	D/A (drive) output (TVD, ECS, TRD, FOD, FBAL, TBAL) Reference voltage input
30	FBAL	O	Focus balance adjustment output
31	TBAL	O	Tracking balance adjustment output
32	FE	I	Focus error signal input (analog input)
33	TE	I	Tracking error signal input (analog input)
34	RFENV	I	RF envelope signal input
35	VDET	I	Vibration detection signal input ("H": detection)
36	OFT	I	Off-track signal input ("H": off track)
37	TRCRS	I	Track cross signal input
38	/RFDET	I	RF detection signal input ("L": detection)
39	BDO	I	Dropout signal input ("H": Dropout)
40	LDON	O	Laser on signal output ("H": ON)
41	TES	O	Tracking error shunt signal output ("H": shunt)
42	PLAY	O	Play signal out ("H": PLAY)
43	WVEL	O	Double speed status signal output ("H": Double speed)
44	ARF	I	RF signal input
45	IREF	I	Reference current input
46	DRF	—	DSL bias (no use, open)
47	DSLF	I/O	DSL loop filter
48	PLLF	I/O	PLL loop filter
49	VCOF	—	VCO loop filter (no use, open)
50	$AV_{DD}2$	I	Power supply input (for analog circuit)
51	$AV_{SS}2$	—	GND (for analog circuit)
52	EFM	—	EFM signal output (not use, open)
53	PCK	—	PLL extraction clock output (fPCK = 4.321 MHz during normal playback) (no use, open)
54	PDO	—	Phase comparison signal of EFM and PCK signals (no use, open)
55	SUBC	O	Sub-code serial data output (no use, open)
56	SBCK	I	Clock input for sub-code serial data (no use, open)
57	Vss	—	GND
58	X1	I	Crystal oscillating circuit input (f = 16.9344 MHz)
59	X2	O	Crystal oscillation circuit output (f = 16.9344 MHz)
60	V_{DD}	I	Power supply input (for oscillating circuit)
61	BYTCK	—	Byte clock output (no use, open)
62	/CLDCK	O	Sub-code frame clock signal output (fCLDCK = 7.35 kHz during normal playback)
63	FCLK	—	Crystal frame clock signal output (fFCLK = 7.35 kHz, double = 14.7 kHz)
64	PFLAG	O	Interpolation flag output ("H": Interpolation) (no use, open)
65	FLAG	O	Flag output (no use, open)
66	CLVS	O	Spindle servo phase synchronizing signal output ("H": CLV, "L": rough servo) (no use, open)
67	CRC	O	Sub-code CRC checked output ("H": OK, "L": NG) (no use, open)
68	DEMPH	O	De-emphasis ON signal output ("H": ON) (no use, open)
69	RESY	—	Frame resynchronizing signal output (no use, open)
70	/RST2	I	Reset input through MASH circuit ("L": Reset)
71	/TEST	I	Test input
72	$AV_{DD}1$	I	Power supply input (for analog circuit)
73	OUTL	O	Left channel audio signal output
74	$AV_{SS}1$	—	GND
75	OUTR	O	Right channel audio signal output
76	RSEL	I	RF signal polarity assignment input (at "H" level, RSEL = "H", at "L" level, RSEL = L)
77	CSEL	—	Crystal oscillating frequency designation input ("L": 16.9344 MHz, "H": 33.8688 MHz)
78	PSEL	—	Test input (normally, "L") (no use, open)
79	MSEL	—	Output frequency switching for SMCK terminal "H": SMCK = 8.4672 MHz "L": SMCK = 4.2336 MHz (no use, open)
80	SSEL	I	Output mode switching of SUBQ terminal ("H": Q code buffer mode)

■ Replacement Parts List

Notes: *Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety.
Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.
When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.
*The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.)
Parts without these indications can be used for all areas.
*Warning: This product uses a diode. Refer to caution statements on page 2.
*The "(SF)" mark denotes the standard part.

Ref. No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CIRCUIT(S)	
IC1	LM2940T5	IC, REGULATOR	⚠
IC401	LC66304A4D86	IC, SYSTEM CONTROL	
IC601	M38112M4104F	IC, FL DRIVE/SYSTEM CONT.	
IC602	LA5608M-TE-L	IC, BUS LINE/HALT/RESET	
IC701	AN8802SCE1V	IC, SERVO AMP.	
IC702	MN66271RA	IC, SERVO PROCESSOR	
IC703	AN8389SE1	IC, MOTOR DRIVE	
IC790	TA7291S	IC, MOTOR DRIVE	
IC801	XRA4558FT1	IC, L. P. F.	
IC802	TC4066BFTP1	IC, SWITCHING	
		TRANSISTOR(S)	
Q1, 2	2SD2137PQTA	TRANSISTOR	⚠
Q4	2SD2137PQTA	TRANSISTOR	⚠
Q5	2SB1238QRTV6	TRANSISTOR	⚠
Q701	2SB709S	TRANSISTOR	
Q801	UN4112	TRANSISTOR	
		DIODE(S)	
D1, 2	RL1N4003N02	DIODE	⚠
D3	RL1N4003N02	DIODE	
D4	MA4082LTA	DIODE	⚠
D5, 6	MA167	DIODE	⚠
D7, 8	MA165	DIODE	
D9	MA4051MTA	DIODE	⚠
D11, 12	MA185TA	DIODE	⚠
D13	MA4270HTA	DIODE	⚠
D15	MA4051MTA	DIODE	⚠
D16	MA185TA	DIODE	⚠
D602-604	MA165	DIODE	
D606	SPR-305MDTF	LED	
D608, 609	MA165	DIODE	
D610	MA4051MTA	DIODE	⚠
		COIL(S)	
L1, 2	BL02RN2R65T2	COIL	⚠
L3, 4	ELEXT3R3KA9	COIL	
L601	RLQA100JT-Y	COIL	
		OSCILLATOR(S)	

Ref. No.	Part No.	Part Name & Description	Remarks
X401	EFOEC4234T3	OSCILLATOR(4.23MHz)	
X601	EFOEC4234T3	OSCILLATOR(4.23MHz)	
X701	RSXB16M9J01T	OSCILLATOR(16.9344MHz)	
		DISPLAY TUBE	
FL601	RSL0185-F	DISPLAY TUBE	
		SWITCH(ES)	
S601	EVQ21405R	SW, R. SKIP/R. SEARCH	
S602	EVQ21405R	SW, F. SKIP/F. SEARCH	
S603	EVQ21405R	SW, REPEAT	
S604	EVQ21405R	SW, RANDOM	
S605	EVQ21405R	SW, LAST FADE	
S606	EVQ21405R	SW, JUST FIT	
S607	EVQ21405R	SW, ALBUM	
S608	EVQ21405R	SW, TRAY OPEN/CLOSE	
S611	EVQ21405R	SW, STOP	
S612	EVQ21405R	SW, PAUSE	
S613	EVQ21405R	SW, PLAY	
S701	RSM0006-P	SW, REST	
S790	RSH1A005	SW, LOADING CLOSE DETECT	
S791	RSH1A005	SW, LOADING OPEN DETECT	
		CONNECTOR(S)	
CN401	RJP6G18ZA	CONNECTOR(6P)	
CN402	RJS1A6823	SOCKET(23P)	
CN601	RJS1A6814	SOCKET(14P)	
CN701	RJU035T016-1	SOCKET(16P)	
CN702	RJS1A6723-1Q	SOCKET(23P)	
CP601	RJS1A6714	SOCKET(14P)	
CP790	RJP6G17ZA	CONNECTOR(6P)	
		GND PLATE	
E1	SNE1004-2	GND PLATE	
		JACK	
JK801	RJT065K15	SYSTEM CONNECTOR	
		TEST JUMPER(S)	
TJ701, 702	EYF8CU	TEST JUMPER	

Notes : * Capacity values are in microfarads (uF) unless specified otherwise, P=Pico-farads(pF) F=Farads(F)
* Resistance values are in ohms, unless specified otherwise, 1K=1,000(OHM) , 1M=1,000k(OHM)

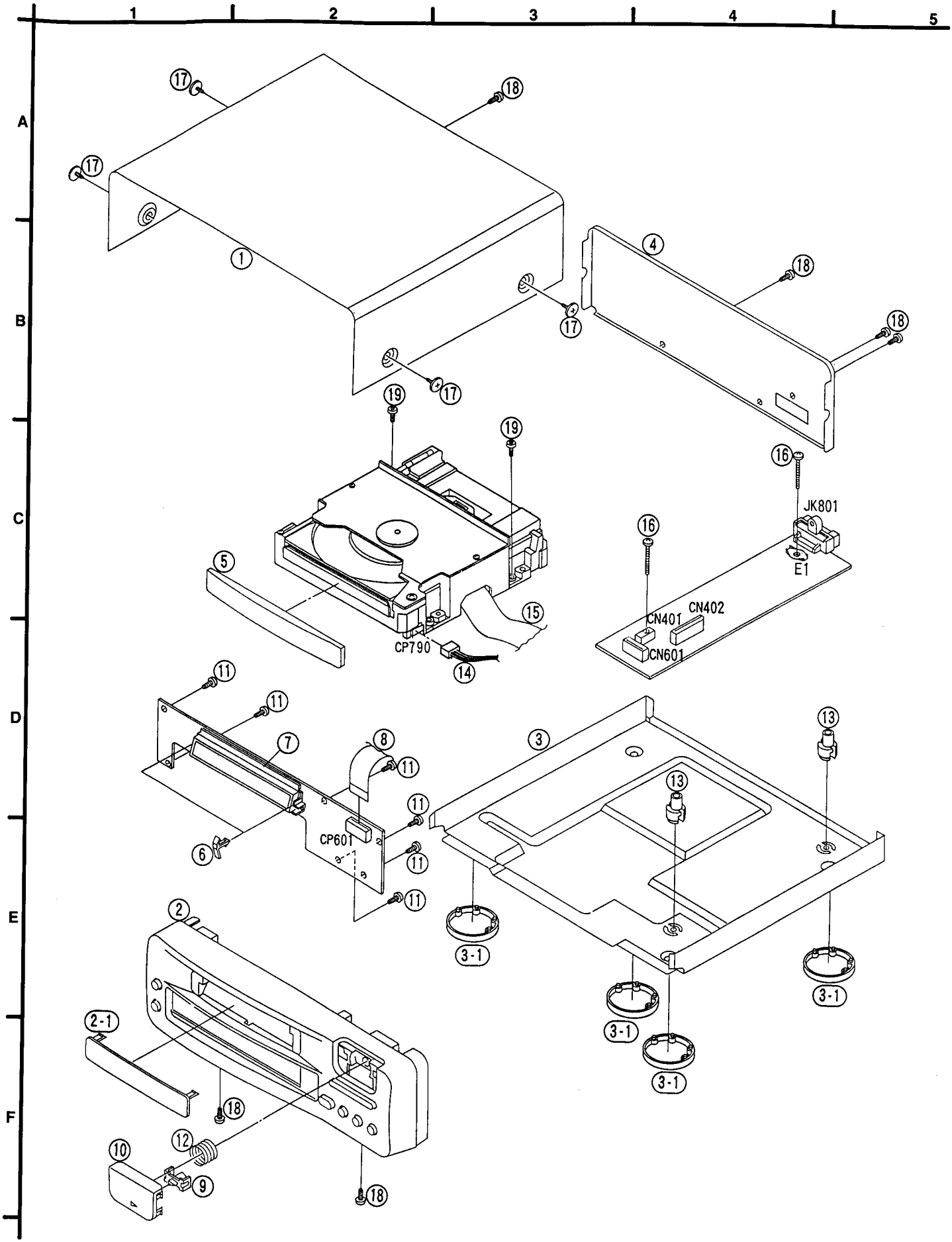
Ref. No.	Part No.	Values & Remarks
		RESISTORS
R1	ERQ16NKWR15E	1/6W 0.15 ⚠
R2	ERDS1FVJ271T	1/2W 270 ⚠
R3	ERD2FCVJ6R8T	1/4W 6.8 ⚠
R4, 5	ERDS2TJ1R2	1/4W 1.2
R7	ERDS2TJ1R2	1/4W 1.2
R8	ERDS2TJ220T	1/4W 22
R9	ERDS2TJ562	1/4W 5.6K
R10	ERDS2TJ562	1/4W 5.6K
R11	ERDS2TJ472	1/4W 4.7K
R13	ERD2FCVJ4R7T	1/4W 4.7 ⚠
R14, 15	ERG1SJ150E	1W 15
R16	ERD2FCVJ4R7T	1/4W 4.7 ⚠
R17, 18	ERG1SJ150E	1W 15
R19, 20	ERDS2TJ100	1/4W 10
R21	ERG1SJ180E	1W 18
R22	ERDS2TJ562	1/4W 5.6K
R23	ERDS2TJ471	1/4W 470
R26, 27	ERDS2TJ271	1/4W 270
R28	ERDS2TJ101	1/4W 100
R31-36	ERDS2TJ100	1/4W 10
R402, 403	ERDS2TJ102	1/4W 1K
R404-407	ERDS2TJ152	1/4W 1.5K
R408	ERDS2TJ104	1/4W 100K
R409, 410	ERDS2TJ103	1/4W 10K
R411	ERDS2TJ472	1/4W 4.7K
R412	ERDS2TJ102	1/4W 1K
R413	ERDS2TJ472	1/4W 4.7K
R414	ERDS2TJ102	1/4W 1K
R415	ERDS2TJ105T	1/4W 1M
R421	ERDS2TJ223	1/4W 22K
R427	ERDS2TJ103	1/4W 10K
R428	ERDS2TJ223	1/4W 22K
R429	ERDS2TJ102	1/4W 1K
R601-604	ERDS2TJ473	1/4W 47K
R605	ERDS2TJ101	1/4W 100
R606	ERDS2TJ104	1/4W 100K
R607	ERDS2TJ103	1/4W 10K
R608, 609	ERDS2TJ102	1/4W 1K
R610-613	ERDS2TJ101	1/4W 100
R614, 615	ERDS2EJ121	1/4W 120
R616	ERDS2TJ104	1/4W 100K
R618, 619	ERDS2TJ151	1/4W 150
R620, 621	ERDS2TJ1R2	1/4W 1.2
R632, 633	ERDS2TJ472	1/4W 4.7K
R637	ERDS2TJ470	1/4W 47
R701	ERJ6GEYJ100	1/10W 10
R702	ERJ6GEYJ471V	1/10W 470
R703	ERJ6GEYJ823	1/10W 82K
R704	ERJ6GEYJ102A	1/10W 1K
R705	ERJ6GEYJ103V	1/10W 10K
R706	ERJ6GEYJ102A	1/10W 1K
R707	ERJ6GEYJ473V	1/10W 47K
R708	ERJ6GEYJ104V	1/10W 100K
R709	ERJ6GEYJ683V	1/10W 68K
R711	ERJ6GEYJ154V	1/10W 150K
R712	ERJ6GEYJ221V	1/10W 220
R714	ERJ6GEYJ121V	1/10W 120
R717, 718	ERJ6GEYJ102A	1/10W 1K
R721	ERJ6GEYJ101V	1/10W 100
R722	ERJ6GEYJ563V	1/10W 56K
R723	ERJ6GEYJ182V	1/10W 1.8K
R724	ERJ6GEYJ333V	1/10W 33K
R725	ERJ6GEYJ472V	1/10W 4.7K
R726	ERJ6GEYJ473V	1/10W 47K
R727	ERJ6GEYJ103V	1/10W 10K
R728	ERJ6GEYJ392V	1/10W 3.9K
R731	ERJ6GEYJ392V	1/10W 3.9K
R735, 736	ERJ6GEYJ101V	1/10W 100
R744	ERJ6GEYJ103V	1/10W 10K
R745	ERJ6GEYJ155V	1/10W 1.5M
R748	ERJ6GEYJ182V	1/10W 1.8K
R749	ERJ8GEYJ103V	1/8W 10K
R801, 802	ERDS2TJ102	1/4W 1K
R803, 804	ERDS2TJ104	1/4W 100K
R805-808	ERDS2TJ223	1/4W 22K
R809, 810	ERDS2TJ273	1/4W 27K
R811, 812	ERDS2TJ332	1/4W 3.3K
R813, 814	ERDS2TJ104	1/4W 100K
R815, 816	ERDS2TJ102	1/4W 1K
R817, 818	ERDS2TJ104	1/4W 100K
R819	ERDS2TJ103	1/4W 10K
		CHIP JUMPER(S)
J701, 702	ERJ8GEY0R00A	1/8W 0
J707-709	ERJ8GEY0R00A	1/8W 0
J714	ERJ8GEY0R00A	1/8W 0
J716-718	ERJ8GEY0R00A	1/8W 0
J721	ERJ6GEY0R00A	1/10W 0
J724-726	ERJ6GEY0R00A	1/10W 0
J728, 729	ERJ8GEY0R00A	1/8W 0
J731, 732	ERJ6GEY0R00A	1/10W 0
		CAPACITORS
C1, 2	ECBT1E103ZF	25V 0.01U
C3	ECA1CM222B	16V 2200U ⚠
C4	ECEA1AKA101B	10V 100U
C5	ECBT1H102KB5	50V 1000P
C6	ECEA1AKA221B	10V 220U
C7	RCE0JKA221BV	6.3V 220U
C8, 9	ECA1VFQ121B	35V 120U
C10	ECA1EM101B	25V 100U ⚠
C11, 12	ECA1HM470B	50V 47U
C13	ECBT1H102KB5	50V 1000P
C401	ECBT1E103ZF	25V 0.01U
C402	ECBT1H104ZF5	50V 0.1U
C403	ECBT1H102KB5	50V 1000P
C404	ECBT1E103ZF	25V 0.01U
C601	ECBT1H104ZF5	50V 0.1U
C602, 603	ECEA1HKA3R3B	50V 3.3U
C604	ECEA0JKA470B	6.3V 47U
C605	ECBT1H102KB5	50V 1000P
C606	ECBT1E103ZF	25V 0.01U
C608	ECBT1E103ZF	25V 0.01U
C610	ECEA1HKAR22B	50V 0.22U
C611	ECEA1HKAR33B	50V 0.33U
C612	ECBT1E223ZF	25V 0.022U
C613	ECBT1E103ZF	25V 0.01U
C701	ECEA0JKA220	6.3V 22U
C702	ECEA1HKA010I	50V 1U
C703	ECEA0JKA101I	6.3V 100U
C704	ECUZ1E104MBN	25V 0.1U
C705	ECEA1HKA010I	50V 1U
C706	ECUE1H101JCN	50V 100P
C707	ECUV1E273KBN	25V 0.027U
C708	ECUE1H472KBN	50V 4700P
C709	ECUE1C473KBN	16V 0.047U
C710	ECUE1H152KBN	50V 1500P
C711, 712	ECUZ1E104MBN	25V 0.1U
C713	ECUV1C104MBM	16V 0.1U
C714	ECEA0JKA101I	6.3V 100U
C715	ECEA0JKA470I	6.3V 47U
C716	ECUE1H561KBN	50V 560P
C717	ECUZ1E104MBN	25V 0.1U
C718	ECUV1C224KBM	16V 0.22U
C721	ECUV1H070DCN	50V 7P
C722	ECUV1H220JCN	50V 22P
C723	ECEA1AKA221I	10V 220U
C724	ECUV1C104MBM	16V 0.1U
C725, 726	ECUV1H102JCN	50V 1000P
C727, 728	ECEA1HPK010I	50V 1U
C730	ECUZ1E104MBN	25V 0.1U
C731, 732	ECEA0JK221I	6.3V 220U

Ref. No.	Part No.	Values & Remarks
C733	ECUZ1E104MBN	25V 0.1U
C734	ECEA1AKA221I	10V 220U
C735-737	ECUZNE104MBN	25V 0.1U
C738	ECUV1C154KBN	16V 0.15U
C742	ECUV1E273KBN	25V 0.027U
C743	ECUZNE104MBN	25V 0.1U
C744	ECUE1E822KBN	25V 8200P
C745	ECUE1H102KBN	50V 1000P
C747	ECUE1H222KBN	50V 2200P
C748	ECUV1H471KBM	50V 470P
C790	ECA1AKF820E	10V 82U
C803, 804	ECBT1H102KB5	50V 1000P
C807, 808	ECBT1H331KB5	50V 330P
C809, 810	ECBT1H121KB5	50V 120P
C811, 812	ECEA0JKA470B	6.3V 47U
C813, 814	ECEA1AKA220B	10V 22U
C815, 816	ECBT1H101KB5	50V 100P

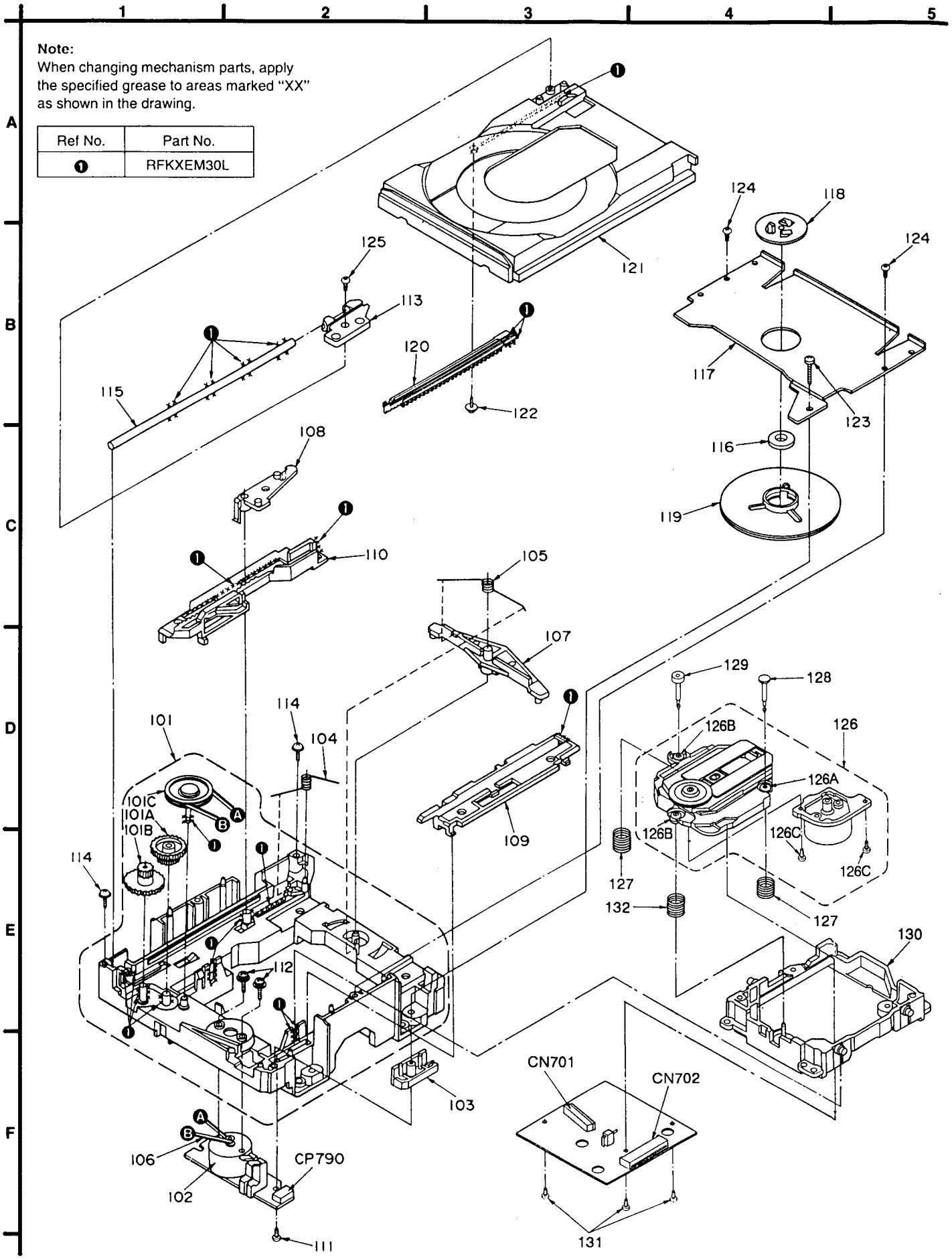
Ref. No.	Part No.	Part Name & Description	Remarks
		CABINET PARTS	
1	RKM0266-K	CABINET	
2	RFKGLCH510EK	FRONT PANEL ASS'Y	
2-1	RKW0346-V	FL PANEL	
3	RFKJLCA1060E	BOTTOM BOARD ASS'Y	
3-1	RKA0011-3	FOOT	
4	RGR0195A-A	REAR PANEL	
5	RGK0648-K	TRAY PANEL	
6	RMN0195	FL SPACER	
7	RMN0276	FL HOLDER	
8	RWJ5414120EE	FPC(14P)	
9	RGL0238-Q	LEADING LIGHT PANEL	
10	RGU1075-K	MAIN BUTTON	
11	XTBS26+8J	SCREW	
12	RMB0370	SPRING	
13	SHE185-2	P.C.B.SPACER	
14	REX0510	LEAD CABLE(6P)	
15	REZ0537	FPC(23P)	
16	XTB3+16JFZ	SCREW	
17	RHD30007	SCREW	
18	XTBS3+8JFZ1	SCREW	
19	XTB3+8FFZ	SCREW	

Ref. No.	Part No.	Part Name & Description	Remarks
		LOADING UNIT PARTS	
101	RFKJLCH505BK	CHASSIS ASS'Y	
101A	RDG0142	LOADING GEAR	
101B	RDG0193	LOADING GEAR(1)	
101C	RDP0065	PULLEY	
102	REM0019	MOTOR ASS'Y	
103	RMA0339	HOLDER	
104	RME0063	LOCK LEVER SPRING	
105	RME0087	SPRING	
106	RMG0158	BELT	
107	RML0177	CONVERSION LEVER	
108	RML0178-1	LOCK LEVER	
109	RMM0059-1	SLIDE PLATE(2)	
110	RMM0079	SLIDE PLATE(1)	
111	XTN26+6G	SCREW	
112	XYN2+F6FZ	SCREW	
113	RDB0036	GUIDE HOLDER	
114	RHD20010	SCREW	
115	RMU0046	GUIDE SHAFT	
116	RHM245ZA	MAGNET	
117	RFKNACH350EK	DISC CLAMPER ASS'Y	
118	RMR0334	MAGNET HOLDER	
119	RXQ0123	DISC HOLDE	
120	RFKNLPG440-K	DRIVE RUCK ASS'Y	
121	RGQ0088-K1	DISC TRAY	
122	RHD20009-1	SCREW	
123	XTB3+25GFZ	SCREW	
124	XTN26+6G	SCREW	
125	XTN3+8JFZ	SCREW	
126	RAE0113Z	TRAVERSE UNIT ASS'Y	
126A	SHGD112	RUBBER	
126B	SHGD113-1	RUBBER	
126C	XQS17+A35FZ	SCREW	
127	RME0109	SPRING(A)	
128	RMS0123-1	PIN(A)	
129	RMS0350	PIN(B)	
130	RMR0698-K	TRAVERSE CHASSIS	
131	XTV2+6G	SCREW	
132	RME0142	SPRING(B)	

■ Cabinet Parts Location



■ Loading Unit Parts Location



Printed in Japan
F940712000 TW/HH/TN